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PRESENTED TO

The New York Academy of Medicine

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MAR 9 1925

New Mexico Members! See Page 28

SOUTHWESTERN MEDICINE

VOLUME VIII JANUARY, 1924 No. 1

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents—See Advertising Section Page 1

MAR 1925
136304.

GASTRON

A complete gastric gland extract, in a potent agreeable solution

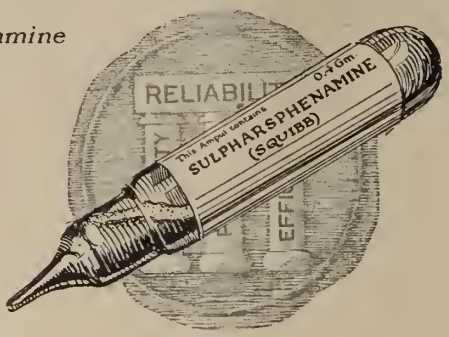
No alcohol
No sugar

In 6 oz. bottles without lettering, that it may be prescribed in the original container.

Fairchild Bros. & Foster
NEW YORK

Sulpharsphenamine

Squibb



Subcutaneous
Intramuscular
Intravenous

The seal that insures reliability

SULPHARSPHENAMINE SQUIBB, like every Squibb product, bears the distinctive seal that insures purity and reliability. Behind that seal stands the reputation of the House of Squibb.

In arsphenamine and its derivatives, such assurance is vital. They must represent maximum potency with a minimum of toxicity. The life of the patient and the welfare of the public depend upon these essentials.

The training, skill and experience of the chemist, the purity of the intermediates, together with rigid chemical and biological control are all vital factors.

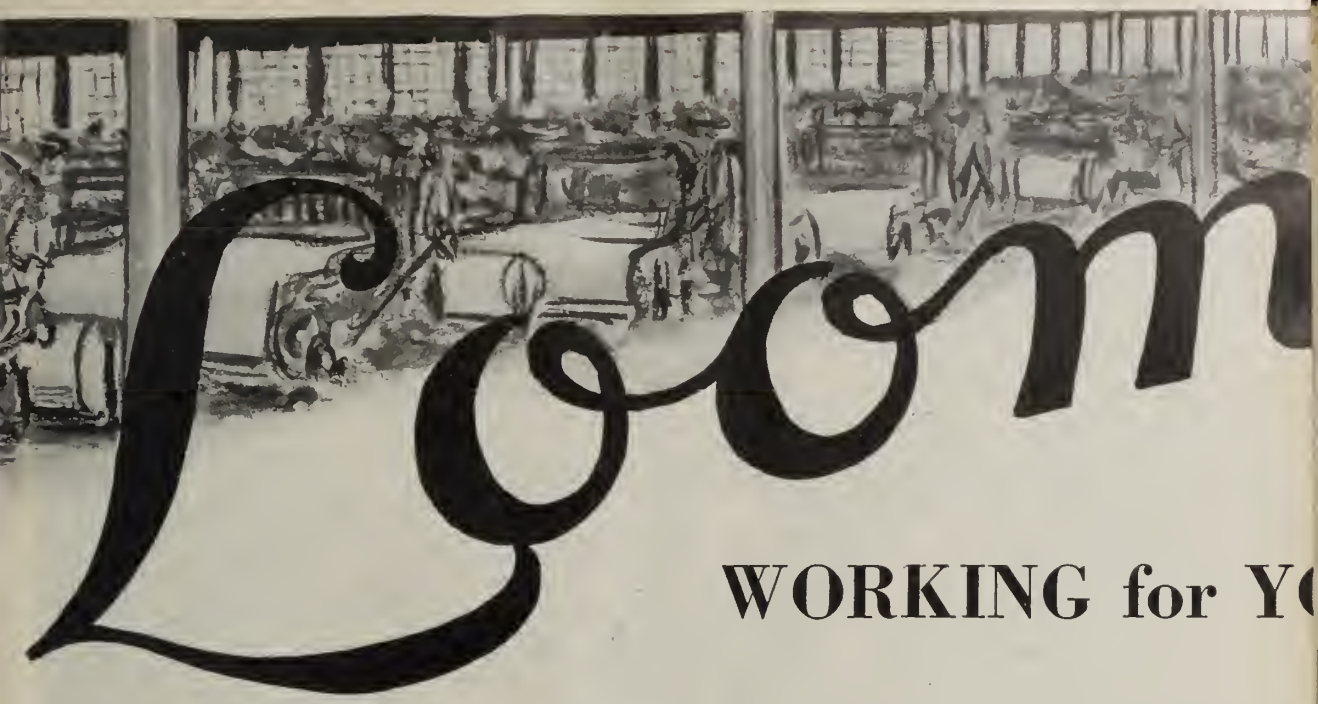
Sulpharsphenamine Squibb is the least toxic of the arsphenamine derivatives, yet it contains more arsenic than neoarsphenamine. Sulpharsphenamine is more stable than neoarsphenamine. In experiments on laboratory animals, Voegtlin found it to be the most efficient in the penetration of the cerebrospinal fluid. (Jour. A.M.A. June 2, 1923, page 1620). It should be useful in the treatment of neurosyphilis.

Sulpharsphenamine is especially adapted to the treatment of children, obese persons and those with veins difficult to reach.

Our new booklet "THE MODERN TREATMENT OF SYPHILIS" will be sent to you upon request.

E·R·SQUIBB & SONS, NEW YORK

MANUFACTURING CHEMISTS TO THE MEDICAL PROFESSION SINCE 1858.



Loom

WORKING for Y(

Our weavers, when working on cloth for you, work just the same as though they were on your payroll. Every inch of cloth is carefully inspected as woven. This is one of the many reasons why

NATIONAL CLOTHS

are in use in progressive chemical industrial plants throughout the country. They always give satisfaction.

When you invest in National Filter Cloths you get a cloth that is woven for the particular filtration requirement. Cloth, many times, is unsuited for another filtration requirement, due to a particular variation in the weave, slight as it may be.

National Filter Cloth & Weaving Co.

134 Broadway, Brooklyn, N. Y.

MILLS:

NEW HAVEN, CONN.

The only Exclusive Manufacturer of Filter Cloth in the United States



Cloth



Combination Jones Spur and Worm Gear Speed Reducers driving Assembly Conveyor. Motor speed 720 R.P.M. Final speed 0.185 R.P.M.

ıere Jones Enclosed ːed Reducers are used

In mills, factories, mines, quarries, warehouses, and many other places, Jones Enclosed Speed Reducers are giving constant satisfaction.

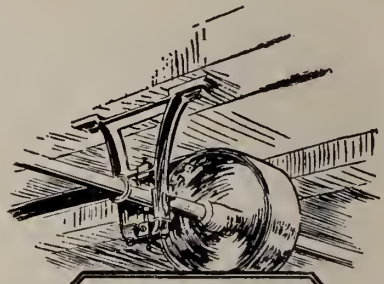
In almost any case where driven machines operate at a lower speed than the electric motors, enclosed speed reducers can be used.

For driving

ELEVATORS	MIXERS	TABLES	CAR HAULS
CONVEYORS	COOKERS	FANS	PUMPS
FEEDERS	SCREENS	DRYERS	HOISTS
AGITATORS	STOKERS	CRUSHERS	GAS PRODUCERS

their superior performance and greater economy over old fashioned methods of speed reduction is an acknowledged fact.

If you would like to know just what advantages you can obtain by using Jones Spur or Worm Gear Speed Reducers, write us. Our engineering staff is at your service—without obligation. Or, if you prefer, write for "The Modern Way to Reduce Speed." It is easy to read, well illustrated—and will interest you.



Power Transmission Service

IN addition to spur and worm gear speed reducers, we manufacture a complete line of power transmission appliances—hangers, pulleys, couplings, pillow blocks, friction clutches, ball-bearing loose pulleys, safety collars, etc.

The service of our engineers is at your command. Their experience may prove very helpful. We will be glad to have you write us.

MEMBER OF AGMA

W. A. Jones Foundry & Machine Company

Main Office and Works: 4444 West Roosevelt Road, Chicago

Branch Sales and Engineering Offices:

ew York	Pittsburgh	Cleveland	Buffalo	Milwaukee
and Murray Sts.	Union Trust Bldg.	226 Superior Ave., N.W.	184 Main St.	425 E. Water St.

ones Speed Reducers

DORR·EQUIPMENT·IN·THE·CHEMICAL·INDUSTRIES



THICKENING

The Dorr Thickener, universally used in the metallurgical industries, for the thickening of ore pulps, slimes and tailings, has found an important place in many chemical industries.

Sometimes the thickener is a part of the production flow sheet as in settling graphite, clay, talc and pigments; or in the counter current washing of chemicals or leached ores as in the production of phosphoric acid, alum, sodium bicarbonate, caustic soda, copper sulfate, lithopone, magnesia, milk of lime, potassium and zinc salts.

Consult Bulletin No. 12

Another important use is in the recovery of by-products. Potash from flue dust, coal from washery slush, rubber from digested waste stock, and valuable solids from gas washing plants are typical examples.

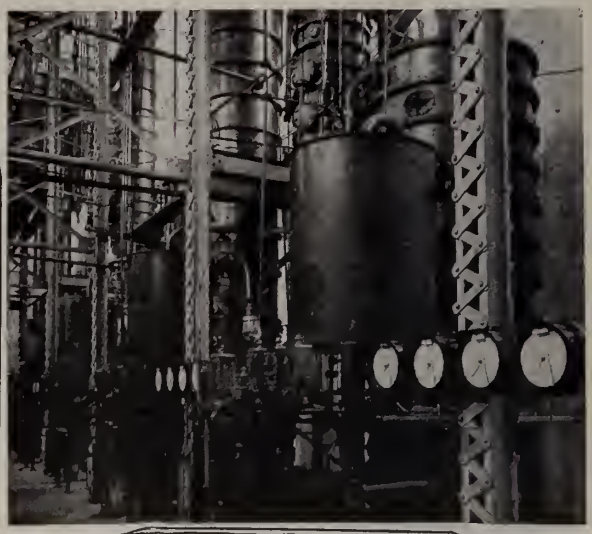
THE DORR COMPANY
ENGINEERS

247 PARK AVENUE NEW YORK CITY

Wood Distillation

e substantially the only concern in the States in a position to equip and operate e plants for the distillation of hard and ods, employing the most advanced types ment throughout. We build a large part uipment in our own shops, and have a force of l experts to supervise the installation and opera- his staff includes technical engineers, two of ave been for extended periods operating super- nts of the largest plants in the United States.

typical example of the service rendered by dger & Sons Company, we would call attention cent contract involving the installation of a e plant costing in the neighborhood illion dollars. Badger engineers were ed in this instance with every phase roposition from the recommenda- tions as to the supply of raw materials to the quality and disposal of finished products.





TRALIZED CONTROL FOR DISTILLING EQUIPMENT

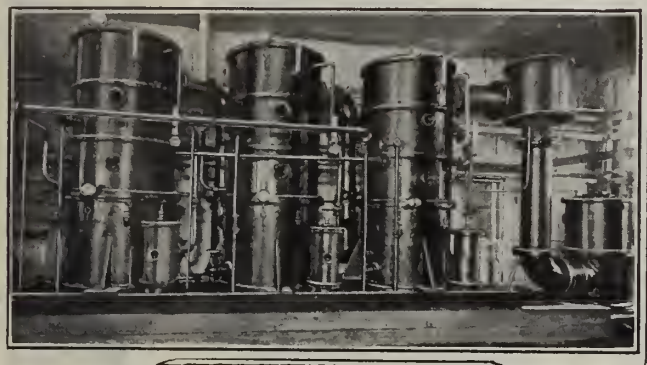
During our eighty-one years of experience we have led the development of distilling machinery from the old style potable spirit stills to our present types of continuous equipment for chemical products.

In recent years we have furnished installations to handle more than thirty different volatiles including Benzol, Phenol, Aniline Oil, Ether, Sulfur Chloride, Acetic Acid, Acetaldehyde, Toluol, Ethyl Nitrite, Ethyl Alcohol, Methyl Alcohol, Ammonia, Chlorobenzol, Acetone, etc.

We are exclusive builders of distilling equipment for many of the largest concerns in the United States. During the past few years we have constructed hundreds of distilling machines of all types for standard and special products.

E. B. Badger & Sons Company
BOSTON MASS.

Evaporation



Badger Evaporators today represent
sult of years of development and resea
Badger engineers.

Although our evaporating equipm
originally designed was efficient and s
tory—which is proved by the fact that m
our earlier installations are still giving go
vice—we have constantly found opportuni
improving our designs.

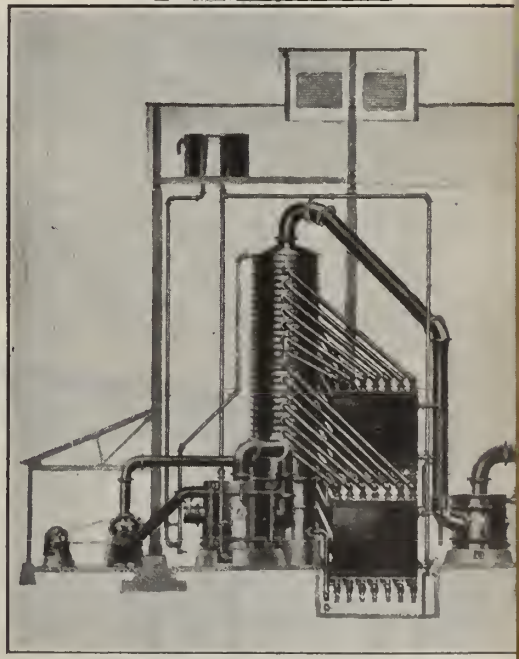
Consequently, Badger standard evap
equipment is—like Badger Service in gener
result of years of accumulated technical exp

Whether your problem calls
standard or a special installati
experience in evaporator const
is at your disposal.

In many important industries the question of proper solvent recovery has become a most important one. The high costs of solvents, and the introduction of extraction processes requiring volatile solvents, have served to direct much attention to problems of this class.

In many cases the savings that can be effected by the introduction of properly designed solvent recovery equipment amount to upwards of one million dollars per year as, for instance, in the case of the manufacture of cord tires, where fiber has to be impregnated with rubber or rubber compounds, requiring the use of volatile solvents.

Badger engineers and chemists have devoted scientific study to the problems involved, and have been able to effect enormous economies in operation, and to obtain recoveries which were not previously considered possible.



SCRUBBING TOWERS FOR SOLVENT RECOVE

Sons Company

N.Y. Office: 101 Park Ave.

Which of these labeling machines fits your needs and your purse ?



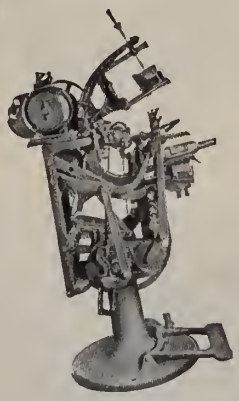
20 to 48 per minute

Adaptable for bottles of different shapes and sizes from 2 oz. to one gallon, and various styles of jars, tumblers, paper boxes and other packages. This type of machine is practically universal in its adaptability.

It can be equipped for placing body labels alone, or body and neck labels at one operation.

It will handle a label which encircles the entire circumference of the package.

The capacity is dependent on nature of labeling to be done.



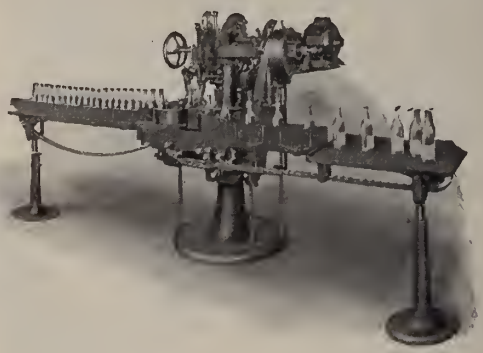
36 per minute

To meet the demand from bottlers for a low-priced machine for round bottles only, The World Labeler Junior was designed.

It is limited in range to round packages where the label does not go more than two-thirds around.

With a capacity of thirty-six per minute, it is a very satisfactory machine for limited output.

Machine is equipped with ¼ H.P. motor.



50 to 100 per minute

For quart, pint, and half-pint bottles such as used by beverage bottlers, packers of catsup and other food products, and for mason jars and tumblers.

This machine qualifies as a satisfactory and reliable high speed apparatus. It places body labels only, or body and neck labels at one operation.

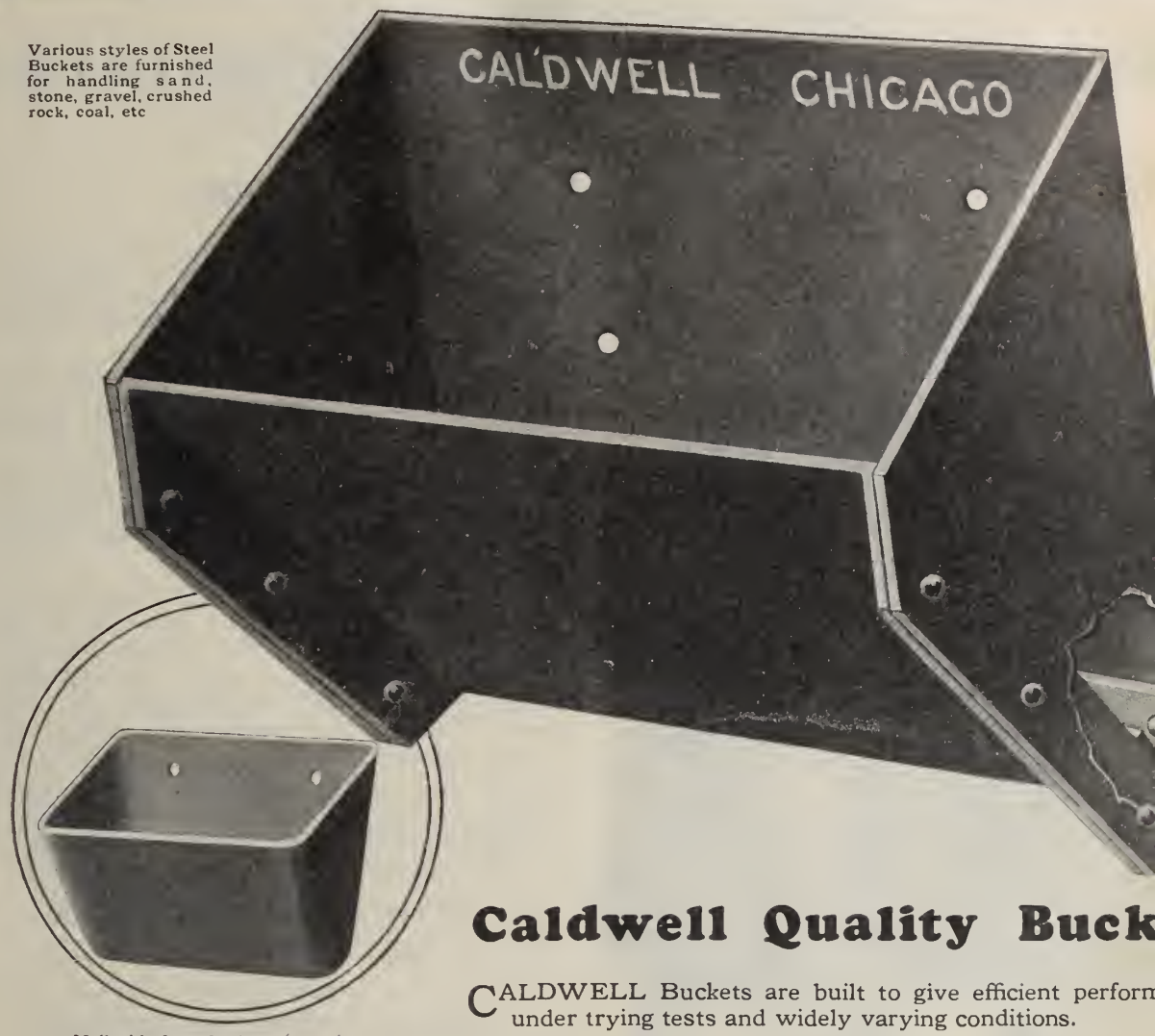
The capacity ranges from 50 to 100 per minute according to the nature of the package to be handled.

Standard conveyor furnished is straight-away and 12 ft. over all, but additional conveyor can be

The World Labeler

made by

Various styles of Steel Buckets are furnished for handling sand, stone, gravel, crushed rock, coal, etc



Malleable Iron Buckets (one-piece smooth castings) furnished in standard sizes from stock. Suitable for heavy work.

The Caldwell Line Includes—

Power Transmission Machinery—Bearings, Shafting, Pulleys, Machine Molded Gears, Cut Gears, Rope Drives, Chains and Wheels. Elevating and Conveying Machinery—Helicoid Conveyor and Accessories, Belt Conveyors, Chain Conveyors, Elevator Buckets, Boots and Casings, Etc. Catalog sent on request.

Caldwell Quality Buck

CALDWELL Buckets are built to give efficient perform under trying tests and widely varying conditions.

The Continuous Steel Bucket is especially adapted for han cement, stone, crushed rock and other heavy material, a made in various gauges of steel, to suit all requirem They are accurately formed, and joints may be either ri or spot welded. No wedging of material or sharp cor May be arranged to overlap, thus forming a contin bucket elevator. Load fully, with even, complete dischar

When considering bucket equipment, for any or all n remember the name, CALDWELL. Remember, also names of Caldwell users, gladly furnished on request.

Our engineers are at your command, with estimates, plan experienced advice.

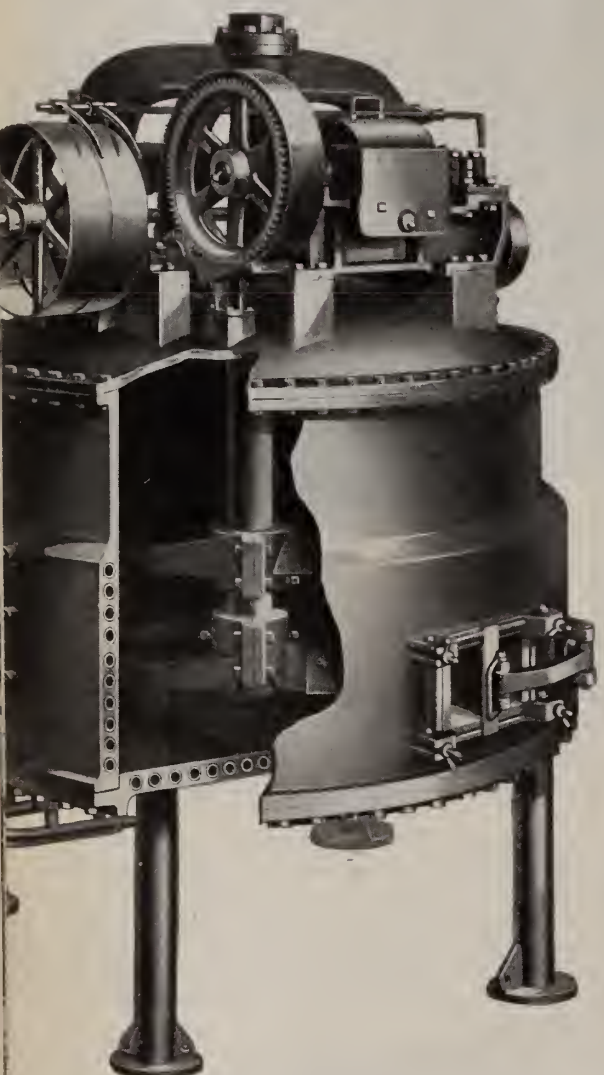
H. W. CALDWELL & SON CO.
LINK-BELT COMPANY, OWNER
CHICAGO, 1700 S. Western Avenue
DALLAS, TEXAS, 810 Main Street NEW YORK, Woolworth
Link-Belt Company offices in principal cities

CALDWELL

roducing the iginal Frederking Apparatus

(PATENTED)

with Cast-in Tubes



m Still
R BULLETIN 500

The ORIGINAL FREDERKING Apparatus is made of cast iron with seamless steel tubes cast in the walls. These tubes form a homogeneous mass with the iron.

Furthermore, these leak-proof cast-in tubes may be heated with boiler steam of any pressure, or by hot water, up to a temperature of 662 deg. F. (350 deg. C.)—without stressing the cast-iron walls.

The wide field of application for The ORIGINAL FREDERKING Apparatus is obvious—especially in OPERATIONS REQUIRING HIGH TEMPERATURES.

Inasmuch as the heating medium passes through the tubes with high velocity, the rate of heat transmission is much greater than in jacketed vessels.

By the use of cast iron, vessels of the ORIGINAL FREDERKING type can be made any desired form. They may be fitted with stirrers, openings, etc., as required.

It also is possible to construct only the heating surface of apparatus according to the ORIGINAL FREDERKING principle when the other parts are made of steel or other material.

BETHLEHEM HOT WATER HEATING SYSTEMS *using the* Original Frederking Apparatus

enable temperatures up to 662 deg. F. to be reached in the vessel; the water being heated in a special furnace erected near the apparatus on a lower level. On erection, all tubes are welded together and leaks thus eliminated.

Among the many notable advantages offered by The ORIGINAL FREDERKING Apparatus heated with hot water, are:

1—Virtually automatic operation, without need of expensive circulating pumps. 2—Choice of fuel: coke, anthracite coal, oil or gas. 3—Avoidance of fire or explosion risks with inflammable materials and replacement cost of oil. 4—Chemicals liable to over-heating are protected by the uniform temperature of the vessel. 5—Life of the apparatus is greatly increased, compared with direct firing. 6—Astonishing saving of fuel over superheated steam methods.

Write us now for complete data on this interesting subject.

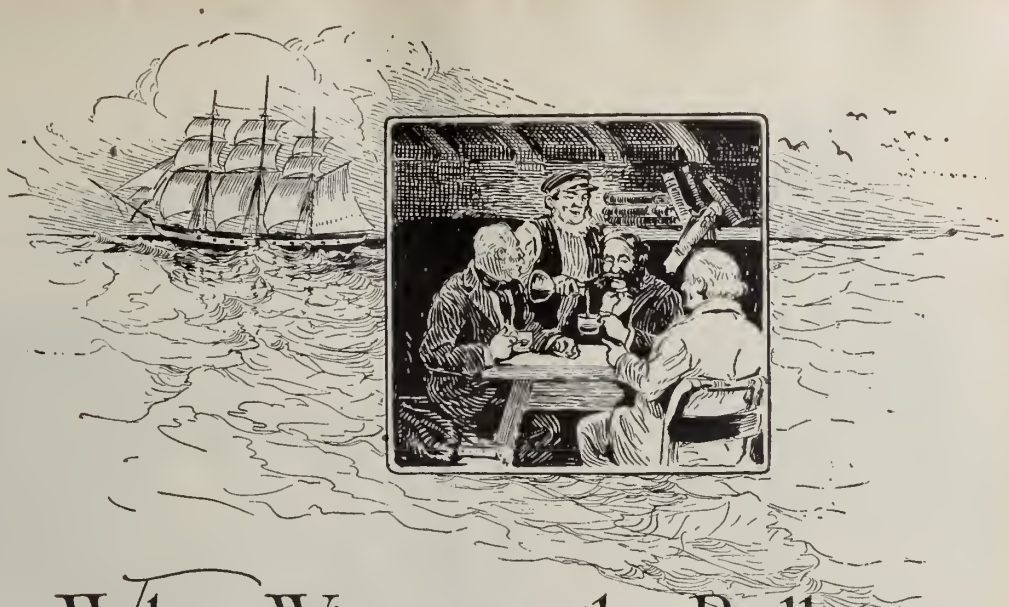
ced

1.

ORIGINAL FREDERKING Apparatus **may be supplied as evaporators, concentrating pans, basins, horizontal cylinders, roasting pans, stills, sublimating apparatus, troughs, retorts, autoclaves, impregnating, calcining or melting apparatus, etc.**

BETTER TO SERVE INDUSTRY

THE BETHLEHEM FOUNDRY & MACHINE COMPANY



When Wine was the Ballast and Brimstone the Cargo

Early in the nineteenth century all Sulphuric Acid was made from brimstone, imported from Sicily. Thus, in slow-sailing ships, this material was brought to America's infant chemical industry.

And in these ships, so the story goes, was carried also —as ballast and as spiritual refreshment for the hardy men of the sea—casks of wine.

On arrival in Philadelphia, the president and other officials, and the customs officer, visited the captain in his cabin. Congratulations and toasts, ceremoniously expressed, were the order. And naturally, a goodly supply of wine was presented to the visitors for future consumption.

—just a glimpse into the past of America's pioneer chemical industry, then operated by John Har (now by du Pont,) at Philadelphia.

From such beginnings have grown the far-rea developments in the chemical field. From suc ginnings has grown the du Pont chemical or zation—one of the largest in the world.

Thus are available to you not only du Pont Qu Chemicals, but a service of great value. Fo great fund of practical experience gained by du in the application of its chemicals to many di industries is at your disposal.

This service has been an important influenc bringing purchasers of heavy chemicals to du

E. I. du Pont de Nemours & Co., Inc.

PHILADELPHIA, PA.
3500 Gray's Ferry Road

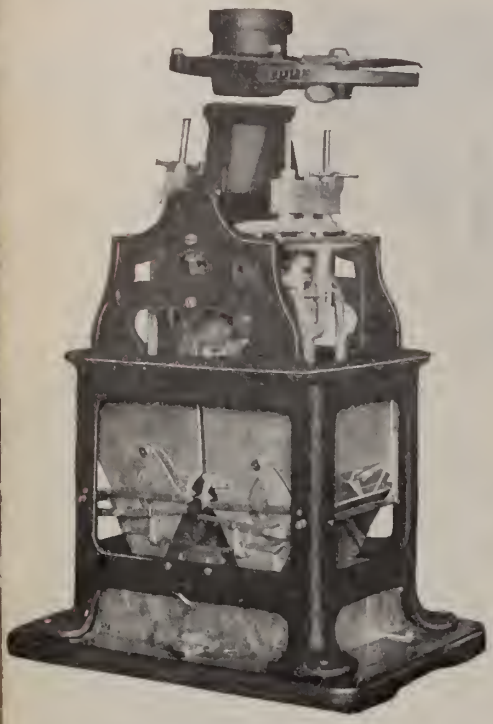
NEWARK, NEW JERSEY
256 Vanderpool Street

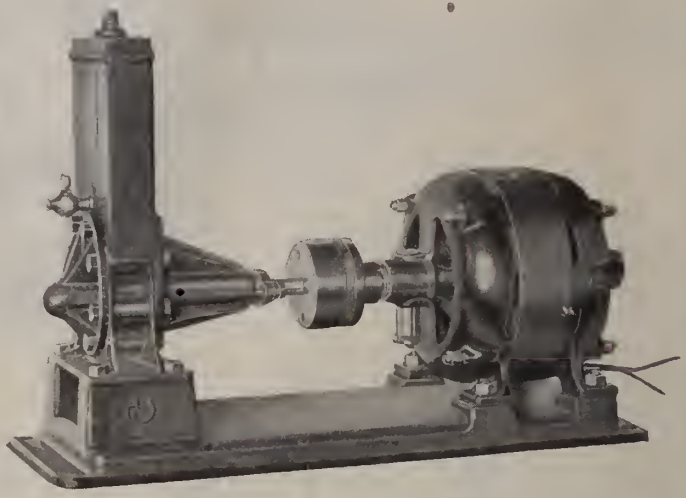


CHEMICALS DU PONT SERVI

Acids: Sulphuric
Chamber—Oil of Vitriol 66°—Oleum—Battery Acid

Sulphate of Alumi
Commercial—Iron Free:
Ammonia & Potash Alums, U





Manufacturing chemists and those who pack any kind of free flowing dry material can effect great economy by using accurate automatic or semi-automatic scales.

We build about the most efficient types of automatic scales now on the market. Full information about these machines will be of interest to you.

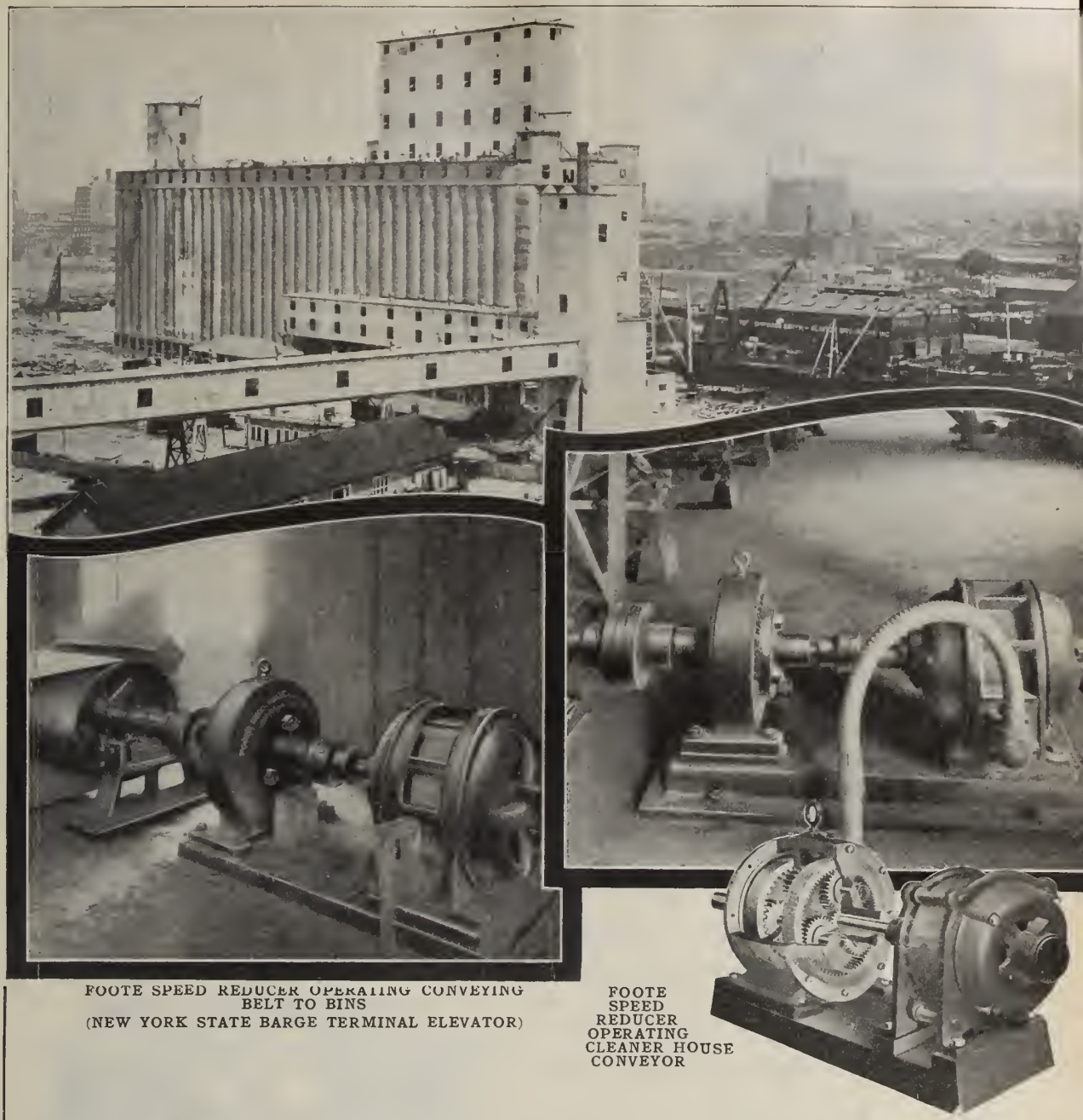
In every well equipped Laboratory there should be both a vacuum and a pressure pump capable of maintaining regular service at whatever degree of vacuum or pressure they may have been set; they should be as noiseless and free from vibration as possible.

We build just such pumps. They are rotary and are direct connected to any suitable high speed stock motor, and can be supplied for either air or gas; and for liquids.

We also build wax and glassine wrapping machines and do "Intraloying" the most modern and satisfactory lead coating process for preventing rust or corrosion.

Write for further information.

American Machine & Foundry Co.



FOOTE SPEED REDUCER OPERATING CONVEYING BELT TO BINS
(NEW YORK STATE BARGE TERMINAL ELEVATOR)

FOOTE SPEED REDUCER OPERATING CLEANER HOUSE CONVEYOR

MEMBER OF AGMA

THE MODERN WAY TO REDUCE THE SPEED OF ELECTRIC MOTORS AND TRANSMIT POWER

The picture above at the left shows a 50 H.P. Foote Speed Reducer reducing the speed of a motor and transmitting the power to a belt conveyor. The reduction of speed is $6^3/_7$ to 1.

The picture above at the right shows a 5 H.P. Foote Speed Reducer reducing the speed of a motor ($6^1/_3$ to 1) and transmitting the power to a cleaner house conveyor.

The use of Foote Speed Reducers has many advantages over the old methods of reducing motor speeds—such as open gearing, belting, chains, ropes, et cetera. You will note this equipment is entirely enclosed, compact, and highly efficient.

Perhaps your transmission equipment can be improved to become more efficient and more economical. Why not talk it over with Foote Engineers? There is no obligation to you.

SEND FOR LITERATURE

FOOTE BROS. GEAR & MACHINE CO.



STYLE "D" BRIDGE TYPE AGITATOR

side sweep, to which are
d adjustable scrapers, and
ched cross-arms, revolve
direction; the paddles
d to the centre shaft
g in opposite direction
e the speed.

ONE USER SAYS:

e entirely satisfied with the
llon Style 'D' Mixers.
e run one of these for about
s and this we consider very
rvice."

ANOTHER SAYS:

00 gallon style 'D' agi-
s giving very good satis-
and we will be glad to get
h with you when we need
equipment of this kind."

FOR RAPID MIXING

DOPP Double Motion Agitators thoroughly and rapidly mix heavy liquids and thick substances.

Successfully used for mixing lubricants, greases, cements, chewing gum, polishing and cutting compounds, hand soap, tooth paste, oil soap, clay and silicate hinder mixtures, heavy chemicals, etc.

DOPP APPARATUS consists of:—

Seamless Jacketed Kettles, 1–1000 gallons.
Mixers or Agitators, 16 different styles.
Vacuum and Pressure Pans, 10–2000 gallons.
Soap Crutchers, 1000 lb. to 4500 lb. capacity.

All illustrated and described in DOPP Catalog VII.

ASK FOR A COPY

Sowers Manufacturing Co.
1303 Niagara St., Buffalo, N. Y.

New York Boston
San Francisco Los Angeles
Toronto, Ont.

The style "A-D" mixer, illustrated below, develops two radically different motions. The spiral screw lifts the contents to the top of the mixer, while the sweep works through the mass in the opposite direction, forcing it downward.

ONE USER SAYS:

"We have been using this equipment now for about seven years and have had very little expense on repair parts and would not hesitate to recommend it for uses similar to which we put it."

ANOTHER SAYS:

"We are well satisfied with the installation."

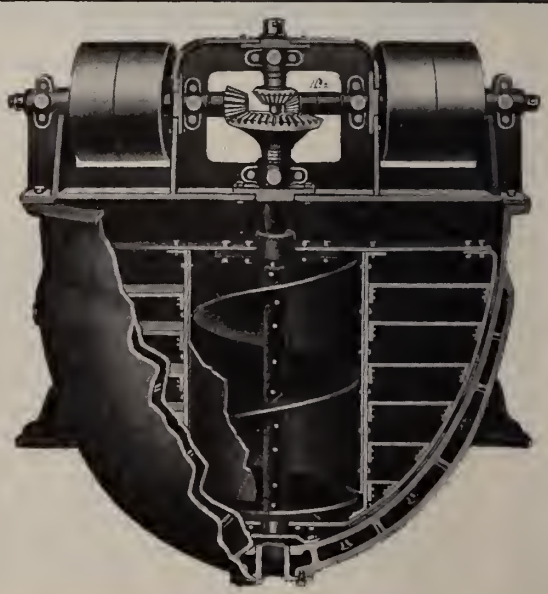


DOPP Seamless, Leakless Jacketed Kettles have "seven points" of superiority.

1. Cast in one piece.
2. Thin Shells.
3. Strong.
4. Smooth.
5. Special iron.
6. Safe.
7. Long lasting

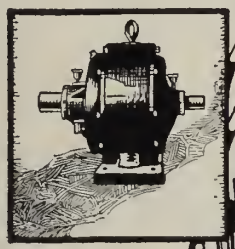
and

Workmanship and material guaranteed for life.



STYLE "A-D" AGITATOR

Standard Sizes o
GANSCHOW
Speed Transformer
shipped from stock



Increased facilities and refined processes enable us to announce that we can now ship Ganschow Speed Transformers of Standard sizes and and ratios *from stock.*

We also have a complete stock of parts—ready for assembly—for sizes and ratios less commonly used, and can make prompt shipment for almost every requirement.

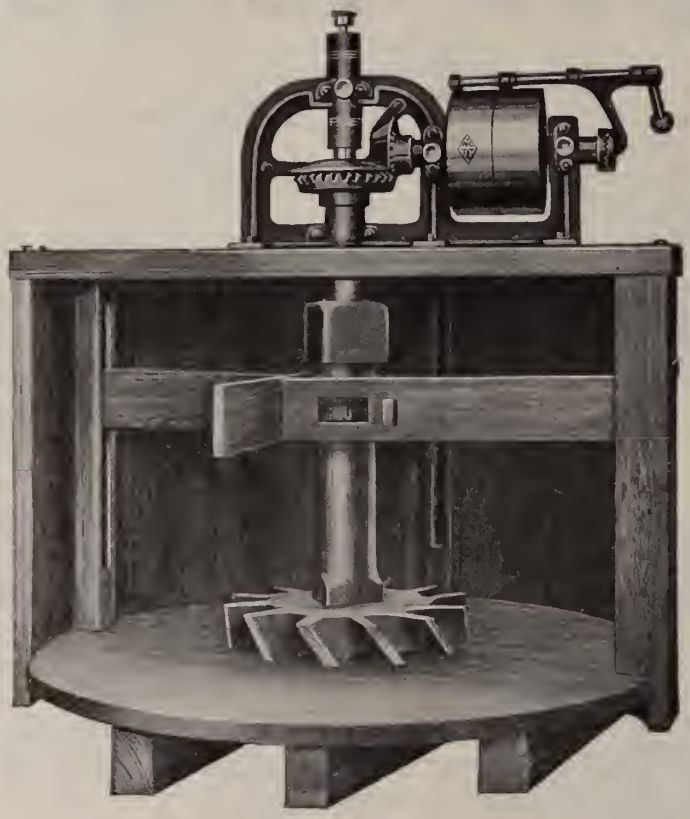
Let us have your next inquiry. Get Ganschow Quality and Design on a real service basis.

WILLIAM GANSCHOW COMPANY
1011 Washington Boulevard
Chicago

MEMBER OF AGMA

AGITATION

"NETT-CO" TURBINE AGITATOR

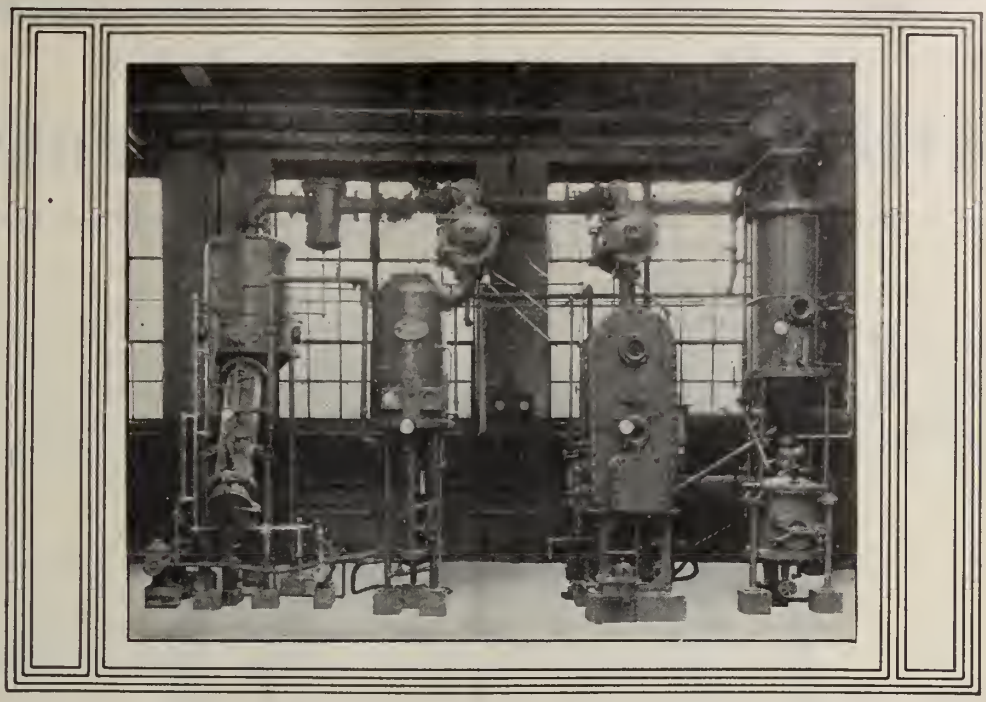


The "NETT-CO" Turbine accomplishes the admixture of dissimilar materials more completely, efficiently and in less time than other types of stirrer installations.

The "NETT-CO" Turbine imparts a positive vertical overturning a compared with the rotating action of other types of equipments. The rotating action tends toward mass movement while the Turbine avoids mass movement entirely.

NEW ENGLAND TANK & TOWER CO.

MAIN OFFICE AND WORKS



Some of the Evaporators in the BUFFLOVAK Research Laboratory

BUFFLOVAK CO-OPERATION

Selecting the correct Evaporator Equipment

SUCCESSFUL evaporation depends primarily on the correct design, perfect construction and the exact type evaporator to meet definite requirements in the product handled. The selection of the proper type apparatus is of equal importance to other considerations.

The wide experience of BUFFLOVAK engineers, in having built evaporators for every industrial purpose, is a valuable asset. A wealth of information is also available from the data of thousands of tests that have been made on many different materials—But even this is insufficient.

BUFFLOVAK maintains a Research Laboratory, completely equipped with every type of BUFFLOVAK apparatus. Here a sample of your product can be treated exactly as it would be in your plant; under your personal supervision if you wish. The exact results can be definitely determined and the correct piece of apparatus recommended.

This is a gratuitous co-operation that involves neither expense nor obligation.

EARER, But LESS Expensive!

ther Three Reasons Why Your Choice of a Mill Should Not be Based Upon First Cost—

How is The Mill Balanced?

The heavy opening, on one side only of an ordinary mill, unbalances it, causing distorted revolutions, raising havoc with the bearings and gears, and starts backlashing. **A Paul O. Abbé Mill,** however, is fitted with a balance block on the opposite side of the cylinder.

The manhole frame and covers are planed, assuring close fitting and preventing leakage.

How are Trunnions Aligned?

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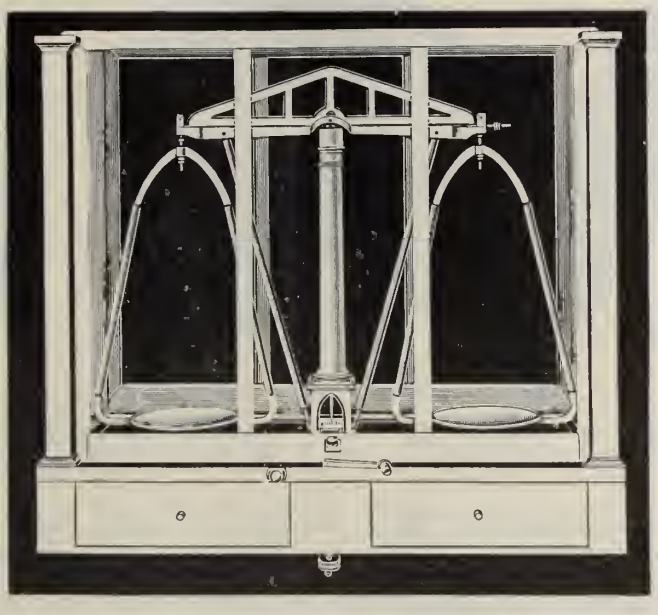
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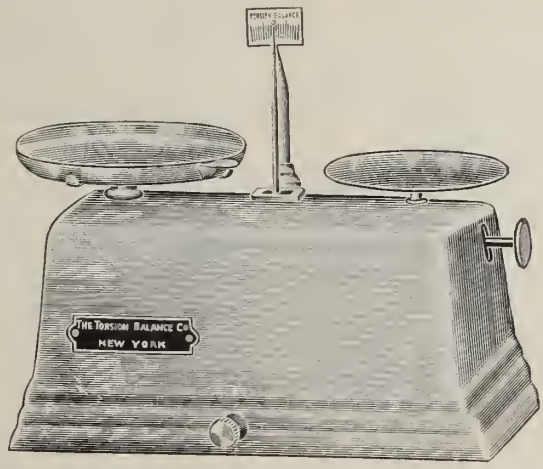
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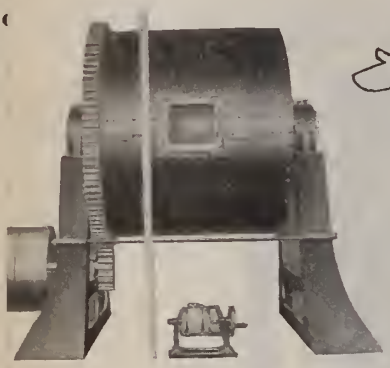
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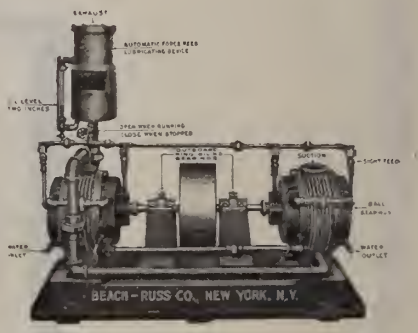
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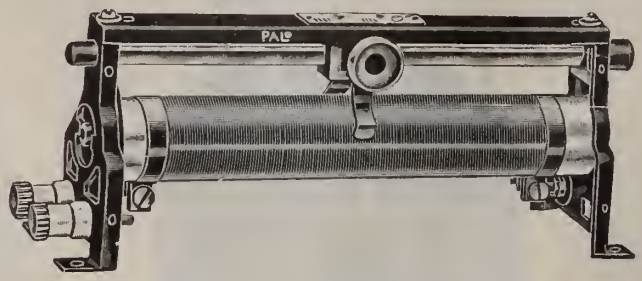
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CONTENTS

THE MEDICAL PROFESSION AND THE LAY PRESS (Presidential Address Before the Medical and Surgical Association of the Southwest, El Paso, Texas, December 12, 1923)..... 1
R. D. Kennedy, M. D., F. A. C. S., Globe, Arizona.

THE SURGICAL RISK OF THE SANATORIUM TUBERCULOUS PATIENT..... 3
F. J. Nordby, M. D., and Wilson R. Abbott, M. D., U. S. P. H. S., Fort Bayard, N. M. (Discussion.)

THE TEACHING VALUE OF POSTMORTEM EXAMINATIONS..... 11
W. W. Waite, M. D., El Paso, Texas... (Discussion.)

LOCAL ANESTHESIA IN SERIOUS CASES..... 14
T. B. Smith, M. D., Wilmington, California.

UNUSUAL DISEASES WORTH WATCHING FOR..... 18

EDITORIAL

THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST (Report of Ninth Annual Session.)..... 19

A SQUARE DEAL FOR OUR ADVERTISERS—THE SOCIETY OF FRIENDS OF MEDICAL PROGRESS..... 26

THE BROOKLYN PLAN OF POSTGRADUATE STUDY—SIXTH STREET MEDICAL BUILDING (LOS ANGELES)..... 27

OPEN LETTER TO MEMBERS OF NEW MEXICO MEDICAL SOCIETY..... 28

BERNALILLO COUNTY MEDICAL SOCIETY—ST. MARY'S HOSPITAL STAFF (ROSWELL).. 28

ST. JOSEPH SANITARIUM AND HOSPITAL STAFF MEETING (ALBUQUERQUE)..... 29

EL PASO COUNTY MEDICAL SOCIETY..... 31

YAVAPAI COUNTY MEDICAL SOCIETY—GILA COUNTY MEDICAL SOCIETY..... 34

MARICOPA COUNTY MEDICAL SOCIETY..... 36

ST. JOSEPH'S HOSPITAL (PHOENIX) STAFF MEETING..... 42

ABSTRACTS—BOOK REVIEWS—GENERAL NEWS ITEMS.....52—56

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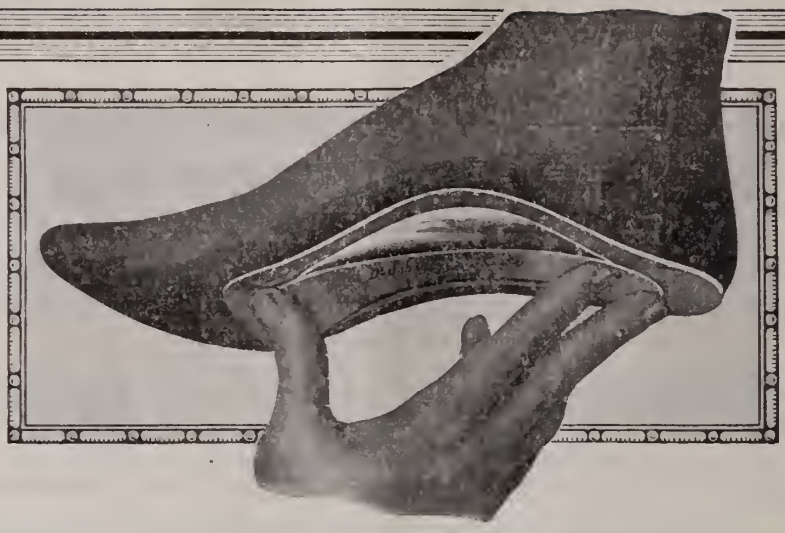
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PRESIDENTIAL ADDRESS

R. D. KENNEDY, M. D., F. A. C. S., Globe, Arizona.

I have chosen for my subject "The Medical Profession and the Lay Press" because I feel there should be more co-operation between them.

The lay press is supposed to be interested in all things that help in the advancement of mankind as a whole; in the upbuilding of the community in which it is published, as well as giving us the world's news. If this is so the press should be interested in the regular medical profession, provided always that the profession is and has been doing its part.

To prove that the regular medical profession as a whole has been doing its part it will be necessary to review briefly its history.

It may be said that Hippocrates was the father of medicine and surgery, as he first gave to the world clinical records showing such close observation of the signs and symptoms of many diseases that, with but few changes, they might have been written today. Through the famous Hippocratic Oath he gave to the profession a code of ethics that is the basis of our medical ethics of today, and I do not think there is another profession whose code sets a higher standard.

Coming down through the ages there has been a constant advancement in medicine and surgery brought about by the labors of such men as John Hunter, Joseph Lister, Dr. Theodore Billroth, Von Langenback, Sir Astley Cooper, Samuel Goss, William Beaumont, Ephraim McDowell, and many others.

The character of these men can be well illustrated by the following letter of John Hunter to his brother William:

"Dear Brother:

The bearer is very desirous of having your opinion. I do not know his case. He has no money and you don't want any, so you are well met. Ever yours,

John Hunter."

About this same time another group of men began doing a work whose influence on the health, happiness and prosperity of the world is still going on. This group is best represented by Louis Pasteur, Robert Koch, Esquin Klebs and Elie Metchnikoff.

These men gave to the world the knowledge of many bacteria and the role they play not only in diseases of the human body, but also in those of animals and plants.

Their work laid the foundation for the work done by Major Walter Reed and others with the American Army in Cuba in 1900, when it was definitely proven that yellow fever was transmitted only through the bite of stegomyia mosquito.

In February, 1901, shortly after Reed had proven his case, Major William C. Gorgas as chief sanitary officer of Havana, Cuba, began to screen yellow fever cases and destroy mosquitoes and in three months Havana was freed from yellow fever for the

(*Before the Ninth Annual Session of the Medical and Surgical Association of the Southwest at El Paso, Texas, Dec. 11-13, 1923.)

first time in one hundred and fifty years. Havana was the focus from which the infection used to spread to our southern states.

In Panama, Colonel Gorgas freed the Isthmus from all dangerous infections, making possible the construction of the canal and changing this notorious pest hole into one of the healthiest communities in existence.

In 1916, General Gorgas made a survey of the epidemic foci of yellow fever in South America, upon which work he was engaged at the time of his death; as a result of this it is now perfectly safe to travel in all parts of that country.

In 1900, Major Frederick Russell began vaccination against typhoid in the U. S. Army, and as a result of this work, during the recent great war, typhoid was almost unheard of.

Of the men who gave their lives while investigating different diseases may be mentioned Jesse W. Lazear, yellow fever; A. Yersin and Franz Muller, bubonic plague; Allen MacFayden, typhoid and malta fever; J. Everett Dutton, African relapsing fever; Howard Taylor Ricketts, tabardillo; Thomas B. McClintoc, Rocky Mountain fever.

Of the developments in therapeutics, Ehrlich's salvarsan, and the insulin treatment for diabetes perfected by Dr. Banting and his co-workers of the University of Toronto, are the most notable.

This very brief sketch of what the regular profession has done, with the very partial list of the martyrs who died in pursuit of this knowledge, should convince any fair-minded person that the medical profession, as a whole, is worthy and deserving of all the support possible.

This is particularly true when it is remembered that none of this knowledge or information has ever been capitalized by the doctor making the discovery, but rather that he has given it to the world without cost.

To illustrate this, Dr. Banting and his assistant, Dr. Best, of the University of Toronto, had they wished, might have patented their valuable discovery and sold it to the medical profession at a price that would have made them immensely wealthy. Instead of doing this, they gave it to the world without cost.

With these facts before you, who can say that there exists a medical trust which is holding up the public for its own gain? Yet this is the cry so often raised whenever any legislation is proposed which will in any way limit the activities of the irregulars or the numerous cults who are constantly exploiting the public.

It is here that I think the lay press can be of more service than it has been in the past. At present the press quite generally is carrying the advertisements of the non-medical practitioners and quite often these advertisements are carried as news stories to the casual reader who fails to notice in the small print accompanying it that it is paid advertisement.

Within the past week I saw an editorial commenting on the number of fraudulent medical diplomas and the number of men practicing medicine illegally in the United States, and concluding by saying that the regularly licensed physicians should exercise more vigilance in preventing this. What incentive is there for the medical profession to do this when the different states appoint special licensing boards who grant licenses to the irregulars? For the minute the title of "doctor" is given them, in the eyes of a large part of the public, they are put on a par with the doctor who spent four to six years of hard work to get his degree.

Of course, I recognize the fact that the newspaper must make a living, and inasmuch as there is considerable revenue to be derived from the irregular and little or nothing from the regular profession, many of the newspapers feel that they cannot forego this revenue.

In view of this fact, is it not possible for the medical organizations of this country to have prepared articles of an educational nature and pay to have them printed in the local papers?

THE SURGICAL RISK OF THE SANATORIUM TUBERCULOUS PATIENT*

F. J. NORDBY, P. A. Surgeon (Reserve), U. S. P. H. S., Chief of Surgical Service, and WILSON RUFFIN ABBOTT, Surgeon (Reserve), U. S. P. H. S., Chief of Medical Service, U. S. Veterans' Hospital No. 55, Fort Bayard, New Mexico.
(Published with consent of the Surgeon General of the United States Public Health Service.)

There is entertained by most internists, and by a good many conservative surgeons, a definite opinion that pulmonary tuberculosis, especially the advanced active stage of the disease, is practically an absolute contra-indication for major surgical procedures; indeed, the opinion has extended to the belief among some clinicians that even the extraction of a decayed tooth may be fraught with such dangers as to be contra-indicated.

This opinion has gained ground as the result of a rather high percentage of failures to obtain satisfactory end results following the surgical corrections of osseous tuberculosis, particularly the grafts in tuberculous spondylitis, and the tuberculous fistulae resulting from abscess in the perirectal tissue. I have been permitted to observe cases of tuberculosis of the bones and joints, of the epidermis, and of the perirectal tissue with fistulae, in which most satisfactory results have been obtained by the carefully graduated administration of heliotherapy, the ultraviolet ray, and the roentgen ray, and I am of the opinion that surgical indications in these conditions are limited to special cases only.

This paper is based on the work of the surgical service of the U. S. Veterans' Hospital No. 55, Fort Bayard, New Mexico, and has been accomplished in the past fourteen months. This series does not include the specialties of the eye, ear, nose and throat, or the genito-urinary tract.

The total is 241 consecutive operated cases, in which 210 have been major and 31 minor. In 58 of the 210 major cases cited pulmonary tuberculosis was not a factor. In 38 the tuberculosis was apparently arrested; in the remaining 114 pulmonary tuberculosis was still active. I have been able to compile statistics in 108 cases, and these 108 cases are the basis of calculations for this paper. The series includes the three chief divisions as classified by the National Tuberculosis Association, viz., minimal, moderately advanced, and advanced.

This series comprises:

Abdominal sections		88
Appendectomies	66	
Appendectomies and exploratory	4	
Appendectomies and gynecological	2	
Gastro-enterostomies	10	
Gastrectomy, partial	1	
Gastro-duodenostomy ("Finney")	1	
Enterectomy (Resection of cecum and ascending colon)	1	
Colostomy	1	
Freeing of abdominal adhesions (Postoperative, both of which were causing intestinal obstruction)	2	
Thoracic		5
Thoracotomy, performed in stages	3	
Aspirations (to relieve cardiac and respiratory embarrassment)	2	
Thyroidectomies	5	5
Miscellaneous		10
Urethrotomy	1	
Transfusion of blood	1	
Hemorrhoidectomy	1	
Herniotomy	1	
Hydrocele	2	
Orchidectomy	1	
Inguinal adenitis, resected	1	
Fracture (Pott's)	1	
Resection of palmar fascia (Dupuytren's contracture)	1	

It will not be disputed that the presence of a tuberculous infection may be, and often is, a tremendously important factor entering into the

(*Read before the Ninth Annual Meeting of the Medical and Surgical Association of the Southwest, at El Paso, Texas, December 11, 1923.)

consideration of a given case, as to whether or not operative procedures are indicated. But I believe the removal of a concurrently existing disease, which is curable or greatly benefited by operative treatment, may also be an equally important factor in enabling a patient to overcome his tuberculous infection and in this way make his tuberculosis prognosis much better, and the probability of reactivation less. For example, a case of advanced active pulmonary tuberculosis with multiple cavitation in both upper lobes who for two years has been gradually retrogressing, had operation for tuberculous ulcers of the cecum and ascending colon, in which there was a perforation of a tuberculous ulcer. A resection of the cecum and ascending colon was done. The patient was very ill for about three weeks, after which he began to improve and in less than ten months he has so improved that he is no longer hospitalized for his tuberculosis. He still has his cavities and a small area of active tuberculosis in one upper lobe, but has gained 20 pounds and is feeling very well. The operation has entirely relieved his abdominal symptoms, which were recurrent attacks of a partial obstruction.

The extent to which other complicating conditions may be aggravating the pulmonary tuberculosis is a matter which is very hard to determine and is of the utmost consequence. It is perfectly obvious that a patient who has pulmonary tuberculosis and a duodenal or gastric ulcer causing pain, with occasional intestinal hemorrhage and the inability to digest and assimilate food, will suffer from a lack of nutrition and as a result thereof offers a less favorable prognosis than a case into which these factors do not enter. Notwithstanding this, the mortality rate from surgery in this class of cases is sufficiently low to warrant undertaking operative treatment, and the results are very satisfactory. It is also true that in those patients suffering from recurrent acute exacerbations of a chronic appendicitis we must from time to time restrict their diet and as a result their nutrition becomes very materially reduced.

These complicating conditions may not only retard but may completely prevent the arrest of the pulmonary disease. Efficient surgery in these cases is obviously not questionable.

In view of the fact that tuberculosis in any form, excepting perhaps the acute miliary type, must be considered a chronic constitutional infection characterized by periods of exacerbation and periods of remission, it should be borne in mind that if operative procedure is undertaken during a period of remission the result may be interpreted to show that the operation was very beneficial, when in reality this is not true. And per contra, if operative procedures be undertaken shortly preceding or during an exacerbation of the constitutional infection the operation will undoubtedly be considered as resulting in a disastrous reactivation, although such may not be the case. For, as we shall see by comparison of a like number of cases in which no operative treatment was undertaken, a greater number of relapses or reactivations have developed than in those operated.

In making these comparisons we have taken an equal number of clinically similar cases in the various classifications of the National Tuberculosis Association (minimal, moderately advanced, and advanced), and have considered them from the following standpoints, and have made the following comparisons:

Anatomical involvement and clinical symptoms.

Complicating conditions other than pulmonary tuberculosis.

Comparisons in weight at entrance into hospital, three months prior to operation and three months after operation.

Comparisons in pulse three months prior to operation and three months after operation.

Comparisons in temperature three months prior to operation and three months after operation.

Comparisons in bacteriological examination of sputum three months prior to operation and three months after operation, with percentage that have gone from positive to negative, and vice versa, three months after operation.

Comparisons have been made in clinical condition, as to whether improved, unimproved or stationary, three months prior to operation and three months after operation.

Comparisons have been made of the present status of the tuberculous condition, whether improved, unimproved or retrogressed.

The surgical results of operation are cited.

It may be well here to state the basis upon which the classification of the National Tuberculosis Association is formulated.

1. Minimal (formerly incipient): Two per cent of cases. Slight or no constitutional symptoms, including particularly gastric or intestinal disturbance, or rapid loss of weight, slight or no elevation of temperature or acceleration of pulse at any time in the twenty-four hours. Slight infiltration limited to the apex of one or both upper lobes, or a small part of one lobe.

2. Moderately advanced: Twenty-six per cent of cases. No marked impairment of function, either local or constitutional. Localized infiltration, moderate in extent, with little or no evidence of cavity formation; or infiltration more extensive than under minimal. No serious complications.

3. Advanced (formerly far advanced): Seventy-two per cent of cases. Marked impairment of function, local and constitutional. Marked infiltration (or fibrocaseous infiltration or fibrosis) of an entire lung. Or disseminated areas of beginning cavity formation. Or serious complications.

Classification will depend upon total involvement regardless of activity. Evidence of involvement of entire right side and upper part of left upper lobe marks a patient as advanced, even though present activity be limited to the left apex.

ANESTHETIC OR ANALGESIA EMPLOYED

It is a matter of very considerable importance to consider the anesthetic or analgesia employed.

Ether was used in 34 per cent of cases.

Notwithstanding the opinion that ether is absorbed by the lung, and excreted by the lung and kidney, the anesthetic action is due to its effect on the nerve centers of the central nervous system and is believed to be eliminated without direct toxic action on the cells of the kidney and the lung, we are nevertheless confronted by the unpleasant fact that three cases (8 per cent) have shown retrogression after their operation. It is worthy of note that none of these cases had subjective symptoms of tuberculosis and had no complications other than those for which operation was performed, and although these cases were not particularly hazardous there was considerable handling of the viscera necessitated in making a thorough exploration of the abdominal cavity.

Resulting trauma may have been a factor, and should be considered in determining the extent to which the untoward end results may be attributed to the ether anesthesia.

Also we should not lose sight of the fact that the complete relaxation produced by ether anesthesia, whereby careful and thorough surgery may be possible, may be of greater benefit to the patient than the slightly decreased danger of other general anesthetics, as nitrous-oxide oxygen, where equal relaxation is not obtainable.

Chloroform was not employed due to the fact that practically all cases of pulmonary tuberculosis have a coexisting myocarditis.

Nitrous-oxide oxygen was used in 4 per cent of cases. There have been no retrogressions following operation.

All of these cases had complicating conditions other than active pulmonary tuberculosis.

Novocain was used in 60 per cent of the cases.

Of the cases operated upon under local analgesia 15 per cent showed retrogression of pulmonary condition, that is 10 in 65 cases. Twenty per cent of these cases were advanced active pulmonary tuberculosis.

These results may be explained by the fact that the cases showing retrogression were all advanced active pulmonary tuberculosis and all were retrogressing before operation.

One case having an idiosyncracy to novocain was operated upon for acute appendicitis; pressure nerve block and pressure tissue infiltration with normal saline solution, with two minims of adrenalin chloride (1/000) to the ounce was employed, supplemented with morphine; the result as to analgesia was very good and recovery uneventful.

Novocain was used in all thyroidectomies, all thoracic work and all abdominal work with the exception of the explorations, gynecological work and operations upon the stomach and gall bladder.

Eleven of the cases operated upon under local analgesia were in active pulmonary hemorrhage at time of operation and in these cases operation was withheld until their condition made surgical procedure imperative.

One case was in an acute pneumonia, complicated by an acute suppurative appendicitis; this case made a very uneventful recovery both from his pneumonia and operative condition, and has shown no retrogression.

Technic: The most rigid asepsis has been observed. Novocain in one-half per cent solution with two minims of adrenalin chloride (1/1000) to each ounce, and simple tissue infiltration was employed in abdominal work. In thyroidectomies the adrenalin was omitted in injections into the gland.

Rather large doses of morphine have been used preceding the operation.

Recently we have been using, with varying degrees of success, the saturated solution of repeatedly recrystallized magnesium sulphate, instead of morphine, and we hope for results later to justify the reporting of this method. It is to be mentioned, however, that there seems to be somewhat greater hemorrhage following the use of the magnesium sulphate.

COMPARISONS ACCORDING TO WEIGHT

Weight at entrance to hospital compared with weight three months post-operative show that 50 per cent are stationary; 31 per cent increased; 19 per cent have lost.

Over a corresponding period of time, patients who were not operated on show that 17 per cent are stationary; 51 per cent have increased; 32 per cent have lost.

Weight three months prior to operation compared with weight three months after operation show that 31 per cent are stationary; 41 per cent have increased; 28 per cent have lost.

Over a corresponding period of time, patients who were not operated on show that 20 per cent are stationary; 34 per cent have increased; 46 per cent have lost.

In the study of these comparisons the following facts are to be noted: The weight loss has been in percentage less in cases that have undergone operation than in those who have not. The weight gain from entrance to three months post-operative, compared to a similar period in cases not operated, is less in the cases operated. However, if the comparison in weights be made from a period three months prior to operation the cases operated upon will show a gain over those not operated upon, i. e., the operated cases have a larger percentage of increase and a smaller percentage of loss of weight than the cases not operated upon.

COMPARISONS ACCORDING TO TEMPERATURE

Temperature range three months

prior to operation, compared to temperature range three months after operation shows that 54 per cent are stationary; 43 per cent show improvement, that is, the temperature has reacted, or more nearly approached normal; 3 per cent have retrogressed, that is, the range of temperature has increased.

Over a corresponding period of time, patients who were not operated on show that 56 per cent are stationary; 27 per cent show improvement, that is, the temperature has reacted, or more nearly approached normal; 17 per cent have retrogressed, that is, the range of temperature has increased.

The operated cases three months prior to operation, compared to three months post-operative, considered in comparison to a similar period in non-surgical cases, show that the operated cases have a greater percentage of improvements, and a decidedly smaller percentage of retrogressions.

COMPARISONS ACCORDING TO PULSE

Pulse rate three months prior to operation, compared with pulse rate three months post-operative, shows that 50 per cent are stationary; 40 per cent show improvement, that is, the pulse rate more nearly approached normal; 10 per cent show increase in pulse rate, or retrogressed.

Over a corresponding period of time, patients who were not operated on show that 30 per cent are stationary; 42 per cent have improved, or pulse rate has decreased; 17 per cent have retrogressed, or pulse rate has increased.

The operated cases have shown a larger percentage in which the pulse has remained unchanged, a smaller percentage that have improved and also a smaller percentage which have retrogressed, when compared three months prior and three months post-operative, and considered in comparison to a similar period in cases which have not been operated upon.

COMPARISONS ACCORDING TO SPUTUM

Previous to operation 25 per cent were positive; after operation 30 per cent of this 25 per cent became negative; 2 per cent that were negative previous to operation became positive after operation.

Over a corresponding period of time, patients who were not operated on show that 65 per cent were positive; at a time corresponding to three months post-operative 67 per cent were positive; 7 per cent of those that were positive at first comparison were negative at second comparison; 11 per cent of those that were negative at first comparison were positive at second comparison.

COMPARISONS ACCORDING TO CLINICAL CONDITION REGARDING PULMONARY CONDITION

In this series the cases were classified three months prior to operation, as compared to clinical condition at entrance into hospital, as follows: 69 per cent were stationary; 12 per cent were retrogressing; 19 per cent were improving.

Over a corresponding period of time, patients who were not operated on were classified as 2 per cent stationary; 30 per cent improving, and 68 per cent retrogressing.

Three months after operation the same cases in this series were classified as follows, as compared to clinical condition three months prior to operation: 8 per cent were stationary; 87 per cent were improving; 5 per cent were retrogressing.

In this series, 90 per cent of the cases which were retrogressing before operation have shown clinical improvement since operation; 57 per cent of the cases which were stationary before operation have shown improvement since operation.

Over a corresponding period of time, patients who were not operated on show that 2 per cent were stationary; 34 per cent were improving; 64 per cent were retrogressing.

PRESENT STATUS

The clinical condition, as compared to the condition three months prior to operation, show that 79 per cent have improved; 6 per cent are stationary, and 15 per cent have retrogressed.

Over a corresponding period of time, patients who were not operated on show that 35 per cent have improved; 30 per cent are stationary, and 35 per cent have retrogressed.

The clinical condition, as compared to the clinical condition three months prior to operation, of patients classified according to the National Tuberculosis Association standards:

Of the Minimal cases, 50 per cent have improved and 50 per cent have retrogressed.

Of the moderately advanced cases, 72 per cent have improved, 14 per cent are stationary and 14 per cent have retrogressed.

Of the advanced cases, 64 per cent have improved, 8 per cent are stationary and 28 per cent have retrogressed.

Over a corresponding period of time, patients who were not operated on show:

Of the minimal cases, 50 per cent are stationary and 50 per cent have retrogressed.

Of the moderately advanced cases, 52 per cent have improved, 4 per cent are stationary and 32 per cent have retrogressed.

Of the advanced cases, 30 per cent have improved, 34 per cent are stationary and 36 per cent have retrogressed.

SURGICAL RESULTS

With reference to the results in the surgical conditions treated by operation, 98 per cent are cured of the complaint or condition for which they were operated, and 2 per cent (two cases) show improvement. These two cases are a case of empyema and one of urethrotomy.

DEATHS

Two cases have died within 24 hours after operation; one was a death in less than an hour from perforation of intestine, with general peritonitis, cause of death being surgical shock; the second was death at 16 hours after operation, from embolism following appendectomy and exploration.

There was one death at 45 hours after operation, in a posterior gastroenterostomy for duodenal ulcer, cause of death being hemorrhage. This patient moved himself about in bed against instructions. Postmortem showed that hemorrhage occurred at site of ulcer in duodenum. Possibly this may have been due to manipulation in course of operation.

One case died of general septicemia. This patient was an advanced case of pulmonary tuberculosis complicated by a violent gonorrheal urethritis. He had a ruptured appendix with a general streptococcic peritonitis at time of operation. Death occurred on the eighth day after operation.

Two other cases that have died to date: One case of tuberculous empyema died of general tuberculous toxemia about one month after chest had been aspirated to relieve respiratory embarrassment.

One case of lung abscess died of toxemia and general septicemia about six weeks after partial thoracotomy.

DETAIL CASES

One case died about three weeks following appendectomy for acute appendicitis. This patient had been considered a terminal case for several weeks; he was in severe pulmonary hemorrhage at time of operation. If considered as chronic appendicitis no one would have even given operation a consideration, but symptoms arose which made him face a death from peritonitis. Under a local analgesia we removed a gangrenous appendix. The man made a complete and uneventful surgical convalescence, and was entirely well from his abdominal condition when he died. As a surgical risk, he was a most formidable spectacle, in hemorrhage, chest literally riddled by tuberculosis, with multiple cavitation in both lungs, yet to operate upon him for his acute abdominal condition was only an act of mercy.

One case died some four months after a simple colostomy for a perforated tuberculous ulcer of the cecum. This man developed acute severe symptoms and was operated as

an emergency. He had a perforated ulcer of the cecum with peritonitis; colostomy was done and drainage established. He lived four months and died of tuberculous toxemia, a terminal case before surgical complications arose.

In the series there have been four primary postoperative deaths, or a mortality of less than 4 per cent, which compares favorably with the mortality rate in general surgical practice; inasmuch as these four deaths are the total in the 210 major surgical cases, it brings our average primary mortality under 2 per cent.

The four other cases which have died since operation, without exception had their lives definitely prolonged by operative treatment.

In this series in the tuberculous cases we have had three stitch abscesses, giving a percentage of less than 3 per cent, and inasmuch as one of the hazards which is to be considered in surgery on the tuberculous is the frequency of secondary infection due to lowered resistance both locally and constitutionally, we feel that our percentage is within reasonable limits.

CONCLUSIONS

1. The analysis of the cases herein presented warrants the conclusion that surgical procedures, when indicated in the tuberculous, should be instituted, and the presence of tuberculosis is not necessarily a contraindication.

2. The belief commonly prevalent that advanced active tuberculosis contraindicates surgical procedures, except for the immediate relief of distressing symptoms, is not necessarily true; on the other hand, surgical procedures may remove the barrier preventing clinical progress towards improvement of the tuberculous condition.

3. Ether should be used only in those cases in which an analgesia is not expedient, as, for instance, in operations of the upper abdomen and to facilitate surgical explorations, in these cases complete relaxation being essential to thorough surgical procedures.

4. Trauma is at all times to be avoided, and the unnecessary handling of viscera and the massaging of tuberculous glands is unreservedly condemned.

5. The analysis of the post-operative clinical course of the advanced tuberculous cases justifies the conclusion that operative procedures when indicated should be undertaken as early as feasible. There should be no undue delay in the instituting of operative procedures. It is obvious that favorable prognosis will be proportionate to the degree of the patient's physical well being prior to the institution of operative treatment.

DISCUSSION

DR. ABBOTT: In a lifetime given over to the practice of tuberculosis, I have had the conviction that the tuberculous patient was not to be subjected to major surgery except in extreme cases. The first awakening I had to the real facts was given by a patient who had been lying in the hospital for a year with an ankylosed knee in a very awkward position; the boy was in pain and distress most of the time. When the surgeon suggested surgical procedures I hesitated, but put it up to the patient; he said that he would rather die than remain as he was. I consented to the surgery and the boy is now going about on a crutch, looks well and is a happy lad. We began this work with fear and trepidation, but bit by bit have been consenting to more and more surgery. When we analyzed these figures we were astonished by the results. From the figures you will recall that 50 per cent of the non-operated cases were stationary, and that this figure held for the operated. However, in the more advanced, 72 per cent of the operated improved as against 52 per cent of the non-operated, and this follows all through. Why should a man who is operated on have a more favorable prognosis than one who is not operated on? The operation is not the answer; but the men who have been operated on all have had pain, and because of this their activities have been curtailed; they have had a long period of rest instead of "chasing the cure" in an auto, attending dances, etc. They have had to follow out a prescribed cure with a period of training and discipline. Would also like to emphasize the great number of gastro-intestinal cases under observation who will eventually come to operation; would also like to emphasize the number of these who have gastric ulcer, many of whom do not have symptoms. Would like to see ether further tested, because there are some who claim it is of no significance and some who think

it is even of therapeutic value in the treatment of tuberculosis.

DR. WATSON: This is a most interesting and enlightening paper because it is inclined to change our ideas. It is full of meat. There is one point I want to stress, and that is the last one mentioned by Dr. Abbott. I have been trying to tell my surgical friends that no patient with tuberculosis should be given ether. Am glad to say that some of my surgical friends believe with me, but some of them do not. If Dr. Nordby, or someone else, could carry on a parallel series of observations, we might learn whether ether is to be used, and I believe it is not.

DR. BENNETT: I have thought that ether should be omitted when possible. There are many cases where a general anesthetic has to be used and in these ether is the choice. Believe we can regulate it to the minimum; ether need not be given in a single uniform manner, but can be governed not only by the physiological indications, but also by the neurological. In a number of cases which I have observed, if the ether anesthesia is preceded by a short period of ethyl chloride and then the ether is given slowly and very gradually increased, the amount of ether can be cut down until there is no appreciable harm, no vomiting or nausea afterwards and no ether on the breath afterwards, although there was complete relaxation; the success of the operation is increased and the risk minimized. The anesthesia is commenced with a maximum amount of air and a minimum amount of ether, gradually increasing the ether until the maximum amount of ether is given. No particular apparatus is used, simply holding the mask high enough to admit the maximum amount of air; there is very gradual anesthesia, with practically no stertorous breathing and very slight after effects. I believe ether can be and should be graduated according to the nervous condition of the patient, as well as the physiological condition. We have much to learn in this regard.

DR. CARHART: All will agree that a well-functioning gastro-intestinal tract is the most important factor in a man getting well from tuberculosis. Having charge of the gastro-intestinal wards at Fort Bayard, has been my privilege to follow many cases on whom major abdominal operations were performed. Only one case of gastro-enterostomy has had a stormy recovery, and a secondary operation was performed on him, due to a fulminating duodenal ulcer which did not heal. The development of alkalosis following treatment for ulcer is an important matter. When the figures are thoroughly analyzed, we will have to revise our ideas about major surgical procedures in the tuberculous. It has been my opinion for a long time that a man fighting tuberculosis has a less chance for recovery if he has a secondary infection to contend with, such as appendicitis, tonsilitis or infected teeth—factors which enter into a large number of cases. The frequency of duodenal ulcer in the tuberculous is absolutely astounding, and there is a large amount of work to be done here by those working with tuberculosis, in order to determine exactly what factor tuberculosis plays in the development of duorenal ulcer.

DR. LEFF: Several years ago was in a hospital in New York, where there were six or seven hundred patients and among them 200 tuberculous patients. The physicians and surgeons would use this material for study and would not hesitate to operate the tuberculous patients. The only question was the anesthetic, and if the condition was such that local anesthesia was not sufficient, ether would be used, and no particular mortality was ever noticed in the tuberculous patients, greater than in other patients.

DR. W. L. BROWN: This is one of the real efforts to be made in this country to get at the facts with regard to surgery in tuberculous patients. Our experience during the last 20 years has been that the tuberculous patient operated on for the proper condition, in the proper way, has been just as good a surgical risk as other people. In many cases where the gastro-intestinal tract has been involved, it has seemed that they got better results than the non-tuberculous. We have heard a lot of loose talk about ether in the tuberculous. One specialist here had ether and activity a year later and said, "I told you there would be activity." Eight per cent of our appendix cases have eaten green apples some time, but that is no way to decide the question. If a tuberculous patient has had ether a year or ten years ago, this does not establish a causal relation. There must be a direct connection between the ether and the disease. If we have a patient who has ether and has no immediate effects, leaves the hospital with improvement as any other case would, gains in weight, and then develops activity two or three or four months later, we should not necessarily blame the anesthetic. We want to see a direct connection. Our experience has been such that we do not hesitate to give ether to tuberculous patients. If he has activity, we give it with judgment. Gas is not a harmless anesthetic. We have had one death from gas, and he died when he was receiving 50 per cent gas and 50 per cent oxygen, before he was anywhere near asleep, and the operation had not started. When they die from gas, it is like chloroform.

DR. NORDBY (closing): We started this work by segregating our patients according to the classification of the National Tuberculosis Association and with the same living and other surrounding conditions. We were at first impressed with the appearance that our operated cases were none the worse for their operations, and when we brought our figures together we were astonished to find that they were better off. Dr. Abbott gave us the reason for this.

THE TEACHING VALUE OF POSTMORTEM EXAMINATIONS*

W. W. WAITE, M. D., El Paso, Texas.

What should be the chief motive in the practice of medicine, financial gain or the ability to execute fine workmanship and render an efficient public service? If it be the latter, how is such an accomplishment to be obtained? Can one be so well educated at school that he can consider himself fitted for life? The answer is so evident that it need not be mentioned. Medicine is such a large and rapidly growing science that one cannot be efficient in it unless he is continually improving himself, or, in other words, he must continue his study throughout life. How to get the most out of the time he can devote to study is an important question for the physician to consider. No doubt there are many ways available, but it seems post-mortem examinations furnish one of the methods worthy of consideration for the following reasons:

One of the most important characteristics of protoplasm is sensitivity, or its ability to react to an outside stimulus, and the human organism is no exception to this rule. Every thought even of the human mind is supposed to be the result of some stimulus. The lowest forms of animal and plant life react to only a few stimuli, as for instance moving towards or away from light, or towards or away from food or chemicals, or towards or away from heat and cold. Birds and mammals go further and build nests or dig holes and store up food, etc. Man goes further and builds homes and surrounds himself with luxury. He even goes further still and accumulates and stores up knowledge.

All of these stimuli can be classed as sort of hunger or thirst stimuli. The peculiar thing about physical appetite is that it can be satisfied for a time, but the more knowledge one obtains the more desirous he is for more, and the search is relentlessly pursued. Probably the highest stimulus to which the human mind can react, whether it be in religion, art or science, is a search after truth. In no place is truth more desired than in religion. The most perfect art is no more than trying to portray the truth in beautiful form, whether in language, music, sculpture or painting, and science has for its one great object the finding out the truth about material things.

Of all the sense organs, the eye is the most delicate and active and one can gain more knowledge through it in the same time than through any other. Also the stimuli received by the eye make a greater impression on the mind than those received from any other organs. Pictures convey more knowledge and more exact knowledge than spoken or written words. Children can read pictures before they can read words and even people who cannot read at all can understand pictures. Most people prefer lantern slides and moving pictures in preference to lectures or even reading. Children can be taught by pictures easier than by any other way. A picture is a representation of an object and the object itself is much better than the picture to teach with. When we want anyone to understand something well, we talk of visualizing it, or making it so plain that one can form a mental picture of it. We hear or read about events, and they produce no great impression. We read of a train wreck or murder and it concerns us little, but if one should be an eyewitness to the occasion, it would cause such a profound shock in him that he might not get over it for many a day. This is well illustrated in court, talking about how someone was killed may not

(*Read before the Ninth Annual Meeting of the Medical and Surgical Association of the Southwest, at El Paso, Texas, December 11, 1923.)

make any great impression on the jury, but let a bloody garment with a bullet hole in it be shown and an impression is made that is hard to blot out. Unusual objects or happenings also produce a greater impression than those seen every day.

If what has been said about the objective method of study is true, then a post-mortem examination furnishes an opportunity for study not excelled by any other method.

A physician is usually busy in many ways, his mind more or less occupied with many things. He reads intermittently, and the longer he is out of school the more hazy his mind picture of anatomy and pathology becomes. He sees his patients and thinks about what they may have. He may even read about them in his books and journals, but with all this, unless he is frequently refreshing his memory by viewing diseased organs, he loses the ability to visualize the condition he is dealing with. To illustrate: Does the word "gastritis" convey the idea of a stomach in which the mucosa is swollen and deeply injected, giving it a deep dark red color, or of a person vomiting and unable to eat? There is no better way to help a physician to keep the ability to visualize diseased conditions or even normal anatomy, than by viewing post-mortems.

It is undoubtedly very difficult for physicians who are out alone to carry on this kind of work, but as our methods of communication and travel become more developed, we find most of our physicians grouped in the large centers of civilization. It will probably always be necessary to have physicians on the outposts of civilization, but there is no group of professional men who need to learn to work together and co-operate more than physicians. The science of medicine is too large for any one man to comprehend. Our county and state societies help to a great extent in overcoming this difficulty, but they are not enough and men cannot get near enough to them. Men realizing this weakness have formed various groups and clinics, none of which are probably ideal, but are successful insofar as the organization enables the physicians working in them to help one another. Some of these groups no doubt have been organized with a financial consideration somewhere at the bottom of the organization.

Recently it has been my pleasure to have a chance to see a group of physicians working together on a different basis. A small group of men, who have been more or less associated, partly through office location, partly from social conditions, and partly from working together, had a desire to have some organization that would help them to better observe and study disease. To carry out their plan a group was formed with the purpose of getting as many post-mortems as possible of their patients who died, and to study these thoroughly. Whenever a post-mortem is held, the members of the group are notified and as many as can attend the post.

After the material has been worked up, these physicians gather together at some convenient time, review the histories and then go over the material from the post-mortem very carefully, discussing the probable symptoms that the various lesions may cause. They also discuss the possibility of making a diagnosis and the best method of treatment of the conditions found. The results obtained so far are exceedingly wholesome. Each one has become more enthusiastic in the study of medicine and desires to know more about the subject and conscientiously tries to carry out reasonable methods of treatment. It translates past book knowledge into practical everyday use and makes what otherwise may have been humdrum drudgery a real service of pleasure and, whether he gets paid for his work or not, he has received something that is far beyond the price of money.

This kind of work can be done by any group of physicians who desire to get together. It helps to remove petty jealousies and shows the need physicians have to rely upon one an-

other and in no way obligates them financially to divide their practice nor does it necessitate one physician helping another financially. Most of all, it helps each physician to develop potential possibilities and in doing so renders a distinct service to the community. The moment he becomes thus interested, it is not disagreeable to him to ask for post-mortems nor try to look on while one is being done.

A postmortem in which there are no anatomical lesions is just as interesting as one in which many are found for the reason that it gives an opportunity to review normal anatomy, and this for the surgeon is very important. Ofttimes the surgeon feels that he learns enough concerning the patient's condition from his operation, but he is always compelled to work through a very small incision and must handle all parts very carefully, so is not able to explore things as he would like, and must necessarily many times not find the cause from which the patient is suffering. The physician who is doing internal work has a chance to see all the various changes and can learn how far he can expect to help correct the faults which may exist, by aiding nature insofar as hygiene, habits and drugs may be able to do so.

What we need is groups of physicians who will pool ideas, instead of fees. An idea is something you can have and give to someone else and still retain it yourself, which it is impossible to do with a fee. If that idea is given to ten people, ten people are enriched thereby and each one may use the idea to make a fee which they would otherwise have been unable to do, and you yourself have lost nothing. In the plan of pooling ideas, every man who accepts them profits by them and must necessarily be stimulated to originate other ideas, which if given to others they must profit likewise in return. Eventually this must necessarily react for the good of all financially, but only to the extent that each man possesses the ability, ingenuity or desire to utilize such ideas. In other words, the financial success of his practice depends upon himself and he is not made a financial parasite to live on others.

To summarize, a physician should have as his chief motive fine workmanship and efficient public service. To accomplish this he must continue his medical studies throughout life. The objective form of study is easiest and most productive. A post-mortem examination furnishes material for such a study and this method of study is well suited for small groups.

DISCUSSION

DR. WERLEY: Anyone who will begin doing postmortems will get enthusiastic over it. The postmortem is not only of value to the physician, but it is the last service that the body can render; it is nobler to give the body for the benefit of the living than to give it to be burned. The laymen benefit and the relatives benefit in knowing exactly what killed the deceased, and in knowing that everything had been done which was possible It is a stimulus to good work; it checks us up either to our satisfaction or to our improvement. Postmortems should be done by an experienced man; they should be very thorough. Just to open the body and look in will not mean much. There was a case which was supposed to be primary carcinoma of the liver; x-ray showed something which looked like a metastasis in the lung; we found a great many metastases in the liver; the suprarenal gland was much enlarged, and it was thought it was the source of the metastases. The prostate was taken out, looking like a normal gland, but it was found that the primary lesion was in the prostate. So that it is necessary to have a good pathologist and a thorough examination, if we are to get value from postmortem examinations. The surgeon can learn much from the postmortem; at the operation he works through a small opening and misses much of the pathology present. Have been looking up the subject of angina and find it very difficult to find reports of postmortems on this subject; there should be more and we should be adding some information from postmortems. A great deal of what we call angina is due to cardiac infarcts. Have had the same experience in preparing a paper on heart disease in children—no postmortems on record. What percentage of children dying in hospitals die from heart disease? There is no data available on this. We will have to get our own data.

DR. VANCE: The thing to do is for each man to make it his business to get more postmortems. The trouble is that so few people are willing to give their consent for their people to be autopsied; this is a lack of education more than anything else. Every case

we lose should have a postmortem so that we may know the details of the cause of death. That is one thing we need to educate the people about. Vienna was made famous by its general hospital, simply because every patient dying there had a postmortem, and when some ten thousand patients had been studied, students flocked there from all over the world, because every morning every case that died was worked out in the postmortem room by their master pathologist. Purely for this reason, up to the time of the war, Vienna was the most famous postgraduate center in the world. When they made a wrong diagnosis they knew it; that kept them up to the minute because all their work was going to be checked. As far as treatment was concerned, Vienna did not rank with many other places, but their postmortem work made Vienna famous.

DR. HANNETT: The Massachusetts General Hospital is becoming famous because of its postmortems. Our best surgeons have always been primarily "dead house" men. Dr. Wyeth was anatomist for Bellevue for many years.

DR. WAITE (closing): We men in the southwest need all the stimulus we can get. The cost of going for postgraduate work is sometimes prohibitive. If we study our cases thoroughly we can do our own postgraduate work. We have as good a postmortem field here as we can find anywhere, with just as interesting and as varied pathology.

LOCAL ANESTHESIA IN SERIOUS CASES*

T. B. SMITH, M. D., Wilmington, California.

My object in presenting this paper is to report without much detail some conditions in which local anesthesia may be advantageously employed. It is not to try to convince anyone it should displace the usual general anesthetics. On the contrary, I believe ether, which I have usually used, to be safe and satisfactory.

There are, however, patients who are in poor physical condition, or more especially those with diseases such as profound septic conditions, intestinal obstruction with severe intoxication, catior, or uncompensated heart, who may be operated on with less risk by using novocain.

The history sheet usually shows that the patient goes to the operating room with intestinal obstruction or severe peritonitis with pulse of 110, and the nurse records after operation pulse 130 or 140. Salt solution is started and stimulation given until the patient recovers the setback of the anesthetic and operation. If the case is something which does not affect the general condition of the patient and the pulse goes up some, we feel that as soon as the effects of the anesthetic are over he will return to normal. However, if the patient has some serious septic condition, or intestinal obstruction in which the patient has to make a fight to get well, we watch this operative upset at times with anxiety.

I have seen several intestinal obstructions die on the table when being operated on by our leading surgeons. Our Professor of Surgery, Dr. Bevan, made a special point of the principle that a strangulated hernia or intestinal obstruction of any duration should never be done under general anesthesia when local anesthesia could be used. I have done a serious obstruction case with general anesthetic and seen the patient die in a few days and considered it unpreventable. I have done the same kind of cases under local anesthesia, and seen them put back to bed with feeling that the operative procedure had surprisingly little effect on the patient. The pulse rate on the chart, as a rule, has not gone up ten beats following the operation. I might say that I have used novocain in quite a variety of cases during the last ten years and have felt that my most satisfying results have been in its use. One feels no special satisfaction in etherizing a patient who is in good condition, and doing a routine operation. But if the patient is a risk, the relatives have to be told it is best to operate and take the chance. In such cases where local anesthesia is applicable, one can say that the effect of performing the operation on the patient will be very slight and not hurt his chances.

(*Read before the Arizona State Medical Association meeting, in Nogales, Ariz., in May, 1921.)

A young Mexican woman came to the hospital with acute appendicitis. It would have been better to have operated her, but on account of being about four months pregnant, was put to bed and after apparently clearing up went home. In about ten days Dr. Rowan of our staff called up from a neighboring town and said she had miscarried and had pronounced peritonitis and condition such that it would be doubtful if she could be moved at all. We took nurse and instruments and found her in very restless condition, vomiting bile stained with fecal odor, eyes sunken, and high pulse. We moved her on her mattress onto table and with novocain made an incision about three inches long in midline without pain to her, although she was very restless from toxic condition. Two tubes were inserted and pus ran out freely. Stomach tube, saline and stimulation were used. For about three days she was in doubt and a few days later was moved to the hospital, where she was over a month clearing up. This woman would have been a very serious risk under general anesthetic of any kind, and I believe it would have resulted fatally, not on the table, but twelve to twenty-four hours afterward. She complained only when I put my finger into pelvis to arrange tubes. The operation caused her no shock.

A white woman, aged 45, had some pelvic trouble for about ten years. She had peritonitis of left lower abdomen with probable diagnosis of old septic tube. We decided to put her in Fowler's position and let her get over acute condition. For three days she improved, then pains in abdomen during night and toward morning, vomiting every half hour bile stained, leucocyte count 28,000, tender with marked give away sign over lower half of abdomen, marked and as high as stomach on the left side. She was operated on as the above patient, without pain, and one large tube inserted into left pelvis. She quit vomiting and cleared up promptly. Within two weeks the tube was removed, but she has been advised to stay in bed a while longer. This woman could have taken a general anesthetic, but believe she made a better recovery without.

We have done other cases similar to the above in general peritonitis in which drainage of one and later other side did not prevent a fatality, but as a rule the patient did not suffer the usual shock of an operation and anesthetic. A number of septic cases I recall in which I believe novocain to be the anesthetic of choice. Empyemas of pleural cavity where drainage was indicated and piece of rib resected were done with small amount of pain to patient. A case of empyema of gall bladder in an old man with 98 gall stones was drained and he made a prompt recovery. He had a septic course for several weeks before entering hospital. Several cases of liver abscess of long standing with abscess located were operated, either removing piece of rib or abdominally.

I have been taught and believe that a dangerous case of intestinal obstruction is much safer done under local anesthesia. We have no doubt each of us seen such cases die on the table, or very soon after. It is my belief that some of these cases where relief is possible can be saved by the use of novocain.

A young Mexican woman shot herself, and received two perforations, one being in the cecum. She entered hospital and was operated on under ether by one of my staff and transfused by citrate method and recovered. About six months later she had intestinal obstruction, apparently complete. She was ready for operation, and as we were ready to take her to the operating room her father, who just arrived, refused consent. I explained necessity, and they decided on taking her home, which they did. She had a rather hard time at home, and in three days one of our staff sent her in again. Her abdomen, especially about the umbilicus, protruded and was very hard. She was vomiting large quantities of

green fluid, pulse 130, temperature 96. She was given morphine, gr. 1/10, proctoclysis, and during operation hypodermoclysis. She was in about as serious a condition as one could imagine. The abdomen was opened under novocain. It contained black, watery fluid. There was a large mass of gangrenous intestine covered by omentum, which was also gangrenous. There was no tenderness, except on special pull of the mass. With an artery forcep the intestine was pulled up and a band from cecum around this mass of intestine cut and about nine feet of ileum proximal to cecum removed and Murphy button anastamosis from end of ileum to the cecum was made. Stomach washings, stimulation and saline were used systematically. Patient passed button on thirteenth day. Fecal fistula formed which seemed permanent, so did lateral anastamosis from ileum to sigmoid and bowels moved twice daily, but instead of fistula closing it remained. This anastamosis was done under ether. Later it was decided to cut ileum below the anastamosis and both ends were buried as an appendix. This stopped the fistula for about a week, when the feces appeared again, coming from sigmoid backwards around large intestine and coming out at cecal fistula, so that the bowels were moving twice daily and the feces coming out of the fistula. Beck's paste was introduced several times into fistula. This passing of the feces backwards around the large intestine was quite a surprise to us, as we did not know such a thing could happen. This patient went on table for the first operation with pulse 130, and when in bed immediately after was 138. Her respiration was 48 the same evening and reached 56 once during the night. Her second operation, lateral anastamosis under ether, pulse before operation was 96, 120 on the table, and 140 following. She had about this same reaction after the next intestinal operation under novocain—the only case in my experience with such reaction.

Patient, white woman, age 32, entered hospital with intestinal obstruction following operation five years before for fibroid. Loop of ileum grown fast to pelvic wall on right side. Morphine gr. 1/6 and novocain; pulse 104; temperature 97.6. Pulse not recorded following operation, for some reason. First pulse recorded following morning, 104. Lateral anastomosis of ileum was done, leaving loop attached. She has been entirely well now, ten months since. She had good deal of pain while we were trying to loosen loop, but none with anastamosis. She had been operated on once before with novocain, and did not hesitate when advised using it again. After the operation she seemed to have received no shock.

The next case was white woman weighing 200 pounds, aged 66, diagnosis probably intestinal obstruction and very severe acute nephritis. Went on table, pulse 96. Morphine gr. 1/6 was used and novocain. She was returned to bed with pulse 100, after having removed ten feet of ileum, the ascending colon, part of the transverse colon, and doing an anastamosis with Murphy button between ileum and transverse colon. The diagnosis was changed to thrombosis of the ileocolic artery on account of the distribution of the beginning gangrene of the intestine. She went to bed in apparently as good condition as when she went on the table. She had a comfortable night, pulse 100 all night. At 8 in the morning she weakened and died an hour later. The operation was done with absolute comfort until the large intestine in the hepatic flexure was being removed, which caused her good deal of pain. However, she stood the operation well, was in good spirits when put to bed, and apparently not affected by the operation. In this case there was little or no pain sense in the intestines and mesentery, which was also the case in the gangrenous intestine case before reported, so that the more severe and long standing the case, the less the pain, as there is almost no sensation left in the affected tissue.

In reporting the next case, a large Mexican woman, 38, with an uncompensated heart, border near axillary line, passive congestion of lungs, legs, abdominal wall, and right arm, on which side she lay, I do so only because it is one of our best results, as I had a paper several years ago on local anesthesia in Caesarian section before this association. The woman was over eight months pregnant. She had been propped up in bed at home for twelve days with stimulation, and was progressively worse. The husband was told that she would likely die within several days, but if he wanted to take the chance, we would do a Caesarian section with some chance of recovery. She was moved to the hospital. On admission, after being moved, pulse 160, respiration 44. She was cyanotic and vomited yellow fluid. Morphine and digitalin were used and repeated during night. Before operation she was given quarter of morphine, so she could quit coughing and raising up. She went to operating room with pulse 124 and returned to bed with pulse 128. Novocain was used for the skin and pituitrin into the uterus. The operation was practically bloodless and patient never complained of pain until silkworm gut was introduced into the skin. The accompanying illustration shows that the incision into the uterus was bloodless. There was no artery forcep or a bleeder. Forceps were used to pull the uterus up to close it. The baby did well. The patient left the hospital on twentieth day on stretcher able to sleep lying down. Dr. Jones reports her heart improving. She is up and around the house part of the day, pulse is about 80, and she is not short of breath when walking around the house. A similar case was reported in Journal of American Medical Association during March. The report said 400 c.c. of blood was lost and pituitrin given in thigh. It does not seem necessary to lose 100 c.c., as there should be no bleeding except at separation of the placenta.



In the aged, novocain has its indication. A Mexican woman, age given as 75, had a large abdominal tumor between eight and ten pounds. Exploration under novocain showed a cyst. With a trocar we removed good deal of fluid and drew up the solid part which was attached by ovarian pedicle. This was ligated and the incision closed. About a third of the tumor was solid. The pathologist's report was cystadenoma, no malignant cells found. The woman was not affected by the operation, wanted to go home, and did so on fifth day to remain in bed until time to get up.

In our cases we have used 1 per cent novocain. Our technic has been very simple, making it a point not to lose the confidence of the patient by hurting him when entering the abdomen. We have used a small hypodermic needle and taken time to inject the skin well and each layer of fascia. We have made it a point to make incisions large enough to dispense with retractors except their very gentle use, and believe it is an impossibility to do operations with local anesthesia if one attempts to use the retractor as in general asesthesia. If this becomes necessary, and an enlarged incision will not suffice, I would prefer to give a general anesthetic.

Some of the prejudice against local anesthesia comes, I believe, from not getting a good start. I have seen the opening of abdomen in midline cause great deal of trouble because the novocain was not injected into the skin properly and about the time the incision was made to the peritoneum the assistant pulled the abdominal wall forcibly apart with retractors. The patient, of course, could not stand this, and local anesthesia is condemned. Our experience has been that this opening of the abdomen in midline can be done without the patient knowing what is being done, and if the space between the transversalis fascia and peritoneum is injected and given two minutes, the peritoneum many times is not painful at all.

PULSE RATES BEFORE AND AFTER OPERATIONS UNDER LOCAL ANESTHESIA

		Pulse Before Operation	Pulse Following Operation
1.	Empyema Gall Bladder with stones	98	98
2.	Thrombosis Mesentery and removal of part of ileum, ascending colon, transverse colon, with anastamosis (Fatal)	96	100
3.	Caesarian Section Uncompensated Heart	124	128
4.	Resection Nine Feet Ileum for obstruction and gangrene	130	138
5.	Anastamosis Ileum to Sigmoid	120	140
6.	Liver Abscess with Rib Resection	80	98
7.	Peritonitis from Appendix (Fatal)	152	152
8.	Puerperal Sepsis and Peritonitis with Peritoneal Drainage	130	128

SOME UNUSUAL DISEASES WORTH WATCHING FOR

It is worth while watching for the unusual, and it is worth while knowing what to watch for. It required two army officers to come into Texas and tell them that they were having malta fever there and had been having it for a generation. Malta fever regularly occurs all over Arizona and New Mexico, and if all the cases were diagnosed and reported, there would be hundreds recorded, instead of an occasional isolated case.

Somewhat akin to malta fever, but with many of the symptoms of plague, is the infection by the bacterium tularense—called tularemia. This condition is endemic among the jackrabbits, and infects the cottontail rabbits as well. It can be transmitted to human beings; it is characterized by fever, glandular swelling and prostration; it is rarely fatal, however. The diagnosis is made by agglutination—in a manner comparable to testing blood serum for malta fever. The Hygienic Laboratory in Washington has investigated the infection among the jackrabbits, and they believe that infection must occur in human beings in Arizona.

We have also been warned to watch for typhus fever, particularly along the border. There is now a laboratory reaction which is regarded as diagnostic of typhus fever. This is the Weil-Felix reaction—in which a definite strain of B. Proteus is used in an agglutination test.

In suspected typhoid cases, where the symptoms and laboratory reactions are not typical, the clinician should not forget these three conditions, which may be confused with typhoid, namely, malta fever, tularemia and typhus.

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THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

Ninth Annual Session

(El Paso, Texas, Dec. 11-13, 1923)

The Ninth Annual Session of the Medical and Surgical Association of the Southwest was called to order by the president, Dr. R. D. Kennedy, of Globe, Ariz., at the University Club, El Paso, at 2 p. m. December 11, 1923. In the absence of the secretary, Dr. Harry R. Carson of Phoenix, Ariz., Dr. W. Warner Watkins of Phoenix was appointed secretary for this meeting.

The minutes of the 1922 meeting were read in abstract form and approved.

The report of the secretary-treasurer was called for and read, as follows:

SECRETARY'S REPORT—1923

We have 97 members in good standing; that is, who have paid their 1923 dues and were entitled to sign their names upon the register of this meeting, to read or discuss a paper during the scientific section, or to vote at the business meeting.

We have 32 members who have not paid their 1923 dues, and to these I now sing, "Come to Jesus, just as I am, without one plea".

We have 18 members who are behind both their 1922 and 1923 dues, whom I take great pleasure in dropping from the fold. When you move away or die, particularly if you die, please resign from the Medical and Surgical Association of the Southwest before calling the undertaker who has always paid you the best commissions.

I take pleasure in submitting the following 31 new names for membership; they have all paid in advance.

Henry Ingalls, Roswell, N. M.
Z. Causey, Douglas, Ariz.
J. A. Massie, Santa Fe, N. M.
N. D. Frazin, Rosita, Coahuila, Mexico.
N. F. Wollard, Portales, N. M.
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H. Ellet Scoles, Swansea, Ariz.
John Henry Wooley, P. O. Box 38, Nacozari, Sonora, Mexico.
Ernesto Quiroz, Ojinaga No. 6, Chihuahua, Mexico.
Joaquin Lopez Garduno, Albuquerque, N. M.
Carl Everett Jumper, Torreon, Coahuila, Mexico.
Francisco Ahumada, Juarez, Mexico.
Eugene Stadelman, Cananea, Sonora, Mexico.
Alberto Trevino, Altar, Sonora, Mexico.
Antonio Lopez Sorcini, Mazatlan, Sinaloa, Mexico.
Harlan A. Harris, Mazatlan, Sinaloa, Mexico.
F. T. Hogeland, Cananea, Sonora, Mexico.
Manuel E. Gonzalez Palavicini, Parral, Chihuahua, Mexico.
Enrique Bazy Dresch, Chihuahua, Mexico.
Richard Emery Yellott, Benson, Ariz.
Henry E. Whitacre, Tularosa, N. M.
Walter E. Scarborough, Albuquerque, N. M.
Charles Paul Austin, Lordsburg, N. M.
Carleton Banks Austin, Lordsburg, N. M.
Parlett, Roger Vinton, Keams Canyon, Ariz.
Ada M. Chevaillier, Gallup, N. M.
Manuel Calderon Vargas, Douglas, Ariz.
Anna L. Nettle, Parker, Ariz.
P. M. Butler, Winkelman, Ariz.
James N. Morrison, Benson, Ariz.
David W. Gillick, Sells, Ariz.
C. D. Jeffries, Williams, Ariz.

At the 1921 business meeting an amendment to the by-laws was proposed by Dr. James Vance of El Paso, seconded by Dr. Willis Smith of El Paso and accepted by vote on first reading: "That the geographical limits of the association now set should be removed and that we accept members from any part of the country from which they choose to come."

This amendment was not acted upon at last meeting (1922) and the secretary urges its adoption at this (1923) meeting. We would not lose members by removal so often and the extra two dollars of these lost members will improve the illustrations of your journal.

H. R. CARSON,
Secretary.

TREASURER'S REPORT—1923

Balance in treasury, 1922 report	$123.16
1921 dues collected— 3 members	9.00
1922 dues collected— 7 members	21.00
1923 dues collected— 97 members	291.00
1923 dues collected— 31 new members	93.00
	$537.16

Total Money

Hughes-Buie Co., Programs, etc.	$ 44.30
H. H. Stowl, Postage, Mailing, Telegrams	20.00
J. H. McWhorter, Stenographer	50.00
J. H. McWhorter, Postage	.75
Mrs. Morg. Schentrup, Registration	10.00
Manufacturing Stationers	5.75
Postoffice, Stamped Envelopes	10.96
N. Sutherland, Copying 50 Letters	5.00
Cloth, rings, ledger	.20
McNeil Co., Membership Book	4.35
N. Sutherland, Auditing	25.00
Southwestern Medicine	250.00
Berryhill Co., Journal pages	1.80
Collection Mexican Money Orders	.14
Total expense	$428.25
Balance in Phoenix National Bank	$108.91

H. R. CARSON,
Treasurer.

The report was referred to the Board of Censors for auditing.

Dr. D. E. Smallhorst announced that some question had been raised about the advisability of holding the dinner in Juarez, on account of the unsettled conditions in Mexico. A vote was taken, resulting in a decision by 19 to 3 in favor of holding the dinner as scheduled, in spite of revolutions or other disturbances.

The Scientific Program was taken up at this point, the first paper being by Dr. Willis W. Waite of El Paso on "The Teaching Value of Postmortem Examinations." The paper was discussed by Dr. Guy Worley of El Paso, Dr. James Vance of El Paso, Dr. J. W. Hannett of Gallup, N. M., Dr. Waite closing the discussion. (Note: This paper and discussions are published in this issue of this journal.)

The second paper presented was by Dr. Frank J. Nordby and Dr. W. R. Abbott of the staff of the U. S. V. B. Hospital No. 55, at Fort Bayard, N. M., entitled "Surgical Risk of the Sanatorium Patient." The paper was read by Dr. Nordby and the discussion opened by Dr. Abbott; discussion was continued by Dr. Samuel H. Watson of Tucson, Dr. H. S. Bennett of Fort Bayard, N. M., Dr. Carhart of Fort Bayard, Dr. M. I. Leff of El Paso, Dr. W. L. Brown of El Paso; discussion was closed by Dr. Nordby. (Note: This paper and discussions are published in this issue of this journal.)

The next paper on the program was by Dr. W. O. Sweek of Phoenix, on the subject of "Regional and Local Anesthesia Routinely Applied in General Surgery." The discussion was opened by Dr. B. F. Stevens of El Paso, continued by Dr. R. D. Kennedy of Globe, Dr. W. W. Watkins of Phoenix, and closed by Dr. Sweek.

The next paper was by Dr. W. H. Woolston of Albuquerque, N. M., on the subject of "Diagnosis and Treatment of Peptic Ulcer From a Surgical Standpoint." Discussion was opened by Dr. C. A. Thomas of Tucson, continued by Dr. J. C. Masson of Rochester, Minn., Dr. Carhart of Fort Bayard, Dr. W. O. Sweek of Phoenix, and closed by Dr. Woolston.

The last paper of this afternoon session was by Dr. P. G. Cornish, Jr., of Albuquerque, N. M., on the subject of "Extrapleural Thoracoplasty in Pulmonary Tuberculosis." Discussion of this was opened by Major F. S. Wright of the William Beaumont General Hospital, Fort Bliss; it was continued by Dr. W. A. Gekler of Albuquerque, Dr. C. A. Thomas of Tucson, Dr. W. O. Sweek of Phoenix, and closed by Dr. Cornish.

Society adjourned to meet Wednesday afternoon.

The program of Surgical Clinics for Wednesday morning was as follows:

HOTEL DIEU

Dr. H. H. Stark:
Tonsillectomies.

Drs. Schuster and Schuster:
General eye, ear, nose and throat clinic.

Dr. B. F. Stevens:
Herniotomy under local anesthesia.
Show Cases: Cured Pott's disease; spastic paraplegia; fracture of

spine with complete paraplegia followed by recovery and foot drop.

Drs. W. L. and C. P. Brown:
Operative Cases: Bone transplant in humerus; double congenital hernia and undescended testicles; infantile paralysis with transplant of tendons.

Dr. James Britton:
Two tonsillectomies, one local and one general.

Dr. L. G. Witherspoon:
Hair lip; cleft palate.

Dr. E. H. Irvin:
Removal of two cataracts.

MASONIC HOSPITAL

Drs. F. P. Miller and E. P. Cummins:
Double inguinal hernia; local anesthesia.

Dr. F. P. Miller:
Appendectomy.

Dr. E. K. Armistead:
Cholecystectomy with paravertebral anesthesia.

Wednesday Afternoon, Dec. 12

Meeting was called to order at 2 p. m. by the president. The president's address was presented at this time by Dr. R. D. Kennedy of Globe, the subject being "The Medical Profession and the Lay Press." (The address is being published in this issue of this journal.)

The next number on the program was a paper by Dr. W. Warner Watkins of Phoenix, Arizona, on the subject of "The Pathologic Indications for Radiation Treatment of Tonsil Disease." The discussion was opened by Dr. W. W. Waite of El Paso, continued by Dr. J. W. Cathcart of El Paso, Dr. J. M. Britton of El Paso, Dr. S. H. Watson of Tucson, Dr. H. H. Stark of El Paso, Dr. W. H. Woolston of Albuquerque, Dr. W. O. Sweek of Phoenix, Dr. Casellas of Fort Bayard, Dr. O. H. Brown of Winslow, the discussion being closed by Dr. Watkins.

The next paper was by Dr. J. C. Masson of the Mayo Clinic of Rochester, Minn., on "Uterine Prolapse." This subject was presented in a very interesting and graphic manner, freely illustrated by lantern slides. The discussion was opened by Dr. Hugh Crouse of El Paso, who showed several colored slides illustrating anatomical points; discussion was continued by Dr. K. D. Lynch of El Paso, Dr. R. L. Ramey of El Paso, the discussion being closed by Dr. Masson.

The next number on the program was an interesting presentation by Dr. Charles G. Stivers of Los Angeles on "Disorders of Speech," illustrated by moving pictures and several patients for demonstration purposes. Time did not permit of a discussion of this subject.

The next paper was by Dr. W. A. Mortensen, head of the Department of Internal Medicine of Battle Creek Sanitarium of Battle Creek, Mich., the subject being "Angina Pectoris." This was a very interesting paper, but time did not permit of a general discussion of it.

The last paper of the afternoon session was by Dr. Wm. A. Schwartz of Phoenix, Ariz., on "Thrombosis of the Lateral Sinus, with Reports of Four Cases." This interesting subject with case reports was also passed without discussion, owing to the late hour.

The annual banquet was held on Wednesday evening, at the "Oasis Cafe" in Juarez. The chief culinary feature of the dinner consisted of venison steak and wild duck. The liquid refreshments were too varied and frequent for the secretary to keep track of. Dr. W. A. Gekler of Albuquerque acted as toastmaster, and called for the following toasts:

From Dr. R. D. Kennedy, on "Our Presidents; Should They Be Beheaded or Drowned?"

From Lieut.-Col. M. A. W. Shockley, on "Our Next War; Its Medical Needs."

From Dr. W. Warner Watkins, on "Medical Advertising; Will it Occur?"

From Major S. W. French, on "Latrine Rumors."

From Dr. W. R. Jamieson, on "Our Wisdom and Witticism."

Several impromptu talks were called for, those that the secretary

can recall being by Dr. J. C. Masson, Dr. W. O. Sweek and Dr. J. W. Hannett.

Thursday morning, December 13, was given up to the Medical Clinics, which were held at the University Club. The following presentations were made:

Dr. R. B. Homan:
Pulmonary Tuberculosis with artificial pneumothorax and peptic ulcer.

Dr. D. E. Smallhorst:
Two cases of intestinal tuberculosis.

Dr. F. D. Garrett:
Giardia infection of duodenum and gall-bladder; amebic colitis.

Dr. G. Werley:
Aortic Aneurism; endocrine cases.

Drs. Rawlings and Leigh:
Feeding Cases; faulty bone development; demonstration of Schick tests.

Dr. S. D. Swope:
Astasia abasia.

The program was resumed at 2 p. m. on Thursday, the first paper being by Dr. Oscar S. Brown of Winslow, Ariz., on "Heliotherapy in Surgical Diseases." Discussion was opened by Dr. John W. Cathcart of El Paso, continued by Dr. H. S. Bennett of Fort Bayard, discussion being closed by Dr. Brown.

The next paper was by Drs. Schuster and Schuster of El Paso, Texas, the subject being "Atypical Adenocarcinoma of the Hypophysis, Case Report and Demonstration." The opening discussion by Dr. D. F. Harbridge of Phoenix was read by Dr. H. H. Stark in the absence of Dr. Harbridge on account of sickness. Discussion was continued by Dr. W. S. Larrabee of El Paso, by Dr. Rogers of El Paso, discussion being closed by Dr. Schuster.

The next paper was the one by Dr. J. S. Pritchard, head of the Department of Chest Diseases of Battle Creek Sanitarium, Battle Creek, Mich., on "Some Thoracic Conditions Simulating Tuberculosis." This was freely illustrated by lantern slides. The discussion of this presentation was opened by Dr. R. B. Homan of El Paso, continued by Dr. H. S. Bennett of Fort Bayard, Dr. E. A. Duncan of El Paso, Dr. W. A. Gekler of Albuquerque, Dr. W. O. Sweek of Phoenix, Major S. W. French of Fort Bliss, the discussion being closed by Dr. Pritchard.

The next paper was by Dr. H. S. Bennett of the U. S. Veterans' Bureau Hospital at Fort Bayard, N. M., on the subject of "The Heart in Tuberculosis." The discussion of this paper was opened by Dr. S. H. Watson of Tucson, continued by Dr. B. F. Stevens of El Paso, and closed by Dr. Bennett.

The next paper was by Dr. J. W. Laws of El Paso, Texas, the subject being "The Relative Value of the Physical Examination and X-Ray in Pulmonary Tuberculosis." The discussion of this paper was opened by Major Scott of the Beaumont Hospital, being continued by Dr. W. A. Gekler of Albuquerque, Dr. Laws closing the discussion.

The last paper of the program was by Dr. S. D. Swope of El Paso, Texas, on the subject of "The Association of Psychoneuroses and Endocrine Disfunction." The discussion was opened by Dr. Charles G. Stivers of Los Angeles, continued by Dr. M. I. Leff of El Paso, Dr. Swope closing.

EXECUTIVE SESSION

The Association convened in executive session immediately after the close of the scientific program.

Under the head of unfinished business, the amendment to the constitution removing the geographical boundaries for members was presented. It developed in the discussion that a member could retain his membership in case he moved away from the district. Motion was made, seconded and carried, that the proposed amendment in its present form be rejected.

The report of the Board of Trustees was presented, containing their recommendations as to new members, as follows:

"The Board of Trustees present the following applications for membership in the

Association, with their approval, and recommend their election:

DR. GEO. TURNER, El Paso, Texas.
DR. JOHN HENRY WOOLEY, Nacozari, Mexico.
DR. ERNESTO QUIROZ, L., Parral, Mexico.
DR. J. GARDUNO LOPEZ, Albuquerque, N. M.
DR. CARL E. JUMPER, Torreon, Mexico.
DR. EUGENE STADELMAN, Cananea, Mexico.
DR. ALBERTO TREVINO, Altar, Mexico.
DR. ANTONIO L. SORCINI, Sinaloa, Mexico.
DR. FRANK T. HOGELAND, Cananea, Mexico.
DR. ENRIQUE BAZ Y DRESCH, Chihuahua, Mexico.
DR. GONZALES PALAVICINI, Parral, Mexico.
DR. RICHARD E. YELLOTT, Benson, Ariz.
DR. HENRY E. WHITACRE, Tularosa, N. M.
DR. CHARLES P. AUSTIN, Lordsburg, N. M.
DR. CARLETON B. AUSTIN, Lordsburg, N. M.
DR. MANUEL G. CALDERON VARGAS, Douglas, Ariz.
DR. ANNA ISRAEL NETTLE, Parker, Ariz.
DR. PIERCE M. BUTLER, Winkelman, Ariz.
DR. FRANCISCO AHUMADA, Juarez, Mexico.
DR. JAMES N. MORRISON, Benson, Ariz.
DR. DAVID W. GILLICK, Sells, Ariz.
DR. C. D. JEFFRIES, Williams, Ariz.
DR. ROGER V. PARLETT, Keams Canyon, Ariz.
DR. W. H. WOOLSTON, Albuquerque, N. M.
DR. RAMON VILLAREAL, El Paso.
DR. HENRY INGALLS, Roswell, N. M.
DR. Z. CAUSEY, Douglas, Ariz.
DR. N. D. FRAZIN, Rosita, Coahuila, Mexico.
DR. J. A. MASSIE, Santa Fe, N. M.
DR. N. F. WOLLARD, Portales, N. M.
DR. W. G. BRYAN, Union Natl. Bank Bldg., Houston, Texas.
DR. HARLAN A. HARRIS, Mazatlan, Sinaloa, Mexico.

The applications of Dr. Ada M. Chevallier of Gallup, N. M., Dr. Walter E. Scarborough of Albuquerque, N. M., and Dr. H. E. Scoles of Swansea, Ariz., were held over pending their affiliation with their respective county societies."

The report of the editor of the official organ (Southwestern Medicine) was presented, as follows:

"As editor of the official journal of the Association, I should make some report by way of accounting for the funds which the Association has invested in Southwestern Medicine.

Two years ago this Association turned over to their official journal something in the neighborhood of $800, and during the past year you have paid in an additional $250. If you are not getting your money's worth, this is a poor investment; if you are getting your money's worth, this should not be hard to prove.

There is some misunderstanding about the reason why Southwestern Medicine is paid $2 per member from this Association, when practically all of the members of the organization receive the journal by virtue of membership in other societies. I want to clarify this point. Southwestern Medicine was born of the necessities of this Southwest Association. After one or two years of unsatisfactory handling of our scientific material, a committee was appointed from this Association to confer with the three other societies in the southwest district, whose members are entitled to become members of the Medical and Surgical Association, and see whether a single journal covering the entire district could not be made to serve the needs of all four societies. The final result of this conference was that Southwestern Medicine came into existence as the official organ of the Medical and Surgical Association, of the El Paso County Society, of the New Mexico Medical Society and of the Arizona State Medical Association.

It was stipulated in the contract that each of the three constituent societies which already had journals of their own should divert their subscriptions to the combined journal—paying $2 per member, and that the Medical and Surgical Association should pay $2 per member into the same journal for the privilege of using it as our official journal. Nothing is said in the contract about this $2 per member from the Southwest Association being a subscription to the journal. It is a subsidy from the organization as a whole, in return for which the journal acts as your official journal.

This combination was effected—and Southwestern Medicine launched in the war period and during the lean years which followed it barely maintained its existence. Two years ago it began its reconstruction, and is now well established, paying its way with its present income, and showing promise of growth.

During the past year the income of the journal was just under $5000, all of which went back into the journal, or is left as a balance to be applied on the journal next year. It will be seen that the $250 paid by this Association is not a very large subsidy to pay for the benefits derived by the Association. Aside from handling all the scientific material of the Association, of advertising its meetings, the positive force which the journal exerts in building up the organization is a necessary factor in our growth. We easily spend all of your subsidy in the actual expense of this propaganda. During the last year the journal twice issued special issues, so that copies might go to every doctor in Old Mexico, and all doctors in Arizona and

New Mexico who are not members of any society. These special issues cost $100 apiece over and above the ordinary cost of the journal. In addition to that the journal office circularized all these doctors by letter twice, so that we have more than expended your $250 in direct propaganda work aiming to build up the membership of the organization. We believe it is part of the journal's function to build the organization it serves.

As the result of this propaganda, carried on entirely through the office of the editor, there were added to your list of members last year fifteen new names, and this year there are thirty to be voted in. Significant among these 45 names are the sixteen members from old Mexico, and I wish to say that this is the first attempt made since the organization of this Association to go in and take possession of the field which is our greatest opportunity —northern old Mexico.

This Southwest Association occupies an unique place among the medical organizations of the country, in that it includes in its district a great empire outside of the United States, bound to us by commercial and economic ties—the four northern states of Mexico. In that district which our Association covers there are 300 practicing physicians, and we must not rest content with the sixteen which we now have, but should have at least 100 of them in this Association.

Nor should we be content with our membership in the remainder of the district. El Paso County should not be proud of having only 40 of its doctors in this Association; New Mexico, with its 400 doctors, cannot be satisfied with only 50 of them in this Association; we in Arizona will not rest content with the 55 of our 300 doctors in the Association.

There is a real and vital reason why the three constituent societies from which this Association draws its membership should be interested in building up the Southwest organization until its power and influence will be felt and recognized. Within the next two years the through Southern Pacific line will be completed from the west coast to Mexico City and daily Pullman service will be instituted from San Francisco to Mexico City, running through Los Angeles, Yuma, Tucson and Nogales. The present line from El Paso to Mexico City already taps a very rich and fairly well populated country. Unless the doctors of the territory which we have designated as our geographical unit proceed with organization work which will focus the attention of medical men in Mexico upon El Paso, Albuquerque, Tucson and Phoenix, the propagandists of Southern California will step in and take it away from us as soon as this railway service opens the way. We have the jump now, but we won't maintain it unless we keeep jumping.

I say, therefore, that the New Mexico Medical Society, the Arizona State Medical Association and the El Paso County Medical Society should, as organizations, as well as through thier interested individual members, be interested in building up and moulding the Southwest Association into a powerful and effective scientific medical body, which will attract and hold the attention of all doctors in our district upon our work, and the work of our members, as compared with anything which may be ballyhooing in the circumferential districts which surround us. There should be some definite plan participated in by all the constituent societies owning the journal, linking up the interest of all three organizations and centering it upon the Southwest organization as the common meeting ground of all three societies. We should have no fewer than 350 members within the next two years—at least 75 from El Paso, 75 from Mexico, 100 from New Mexico and 100 from Arizona. This is a very conservative figure and one easily obtainable by well-directed propaganda.

In carrying through this propaganda Southwestern Medicine will perform one of its chief functions.

For example, if we found it advisable, we could use in the journal a summary in Spanish of all the scientific papers—covering from one-half to one page following each article. This would probably go a long way toward securing the interest and active co-operation of our Spanish-speaking confreres in Mexico.

What the journal should be in relation to the societies is the instrument of a force—and not the creator of that force. The force should come from the organization and scientific activities of the Association and constituent societies, and be put into operation through your official publication.

The president of this Association should be the most important and the busiest man in the southwest during his term of office, for he should be the active head of the organization propaganda of the district. It should be his function to enlist the active co-operation of his state or county society in building up and making effective the Southwest organization.

Your secretary should be some man who can be in almost daily communication with the editor of the journal, particularly during the next two years; he should be a man of initiative, of imagination, and of executive ability, because this organization work is just starting and is proceeding in a very halting manner from a lack of vis a tergo, which should originate in the secretary's office.

This Association can be moulded into one of the strongest medical organizations in the country, because of its unique geographical location, and your official journal can be made the means of achieving that consummation which we have so devoutly desired these many years."

The report of the Committee on Necrology was called for.

Dr. J. W. Laws reported with respect to Dr. Willis R. Smith of El Paso, and Dr. G. S. McLandress re-

ported with respect to Dr. J. R. Gilbert of Alamogordo, N. M. Dr. W. W. Watkins reported that no member of the Association from Arizona had died during the past year.

Motion was made that the verbal resolutions with regard to the two deceased members be put in writing by Dr. Laws and Dr. McLandress, sent to the secretary for record on the minutes, and for transmission to the families of the deceased. This motion prevailed. The following resolution regarding Dr. Willis R. Smith has been received:

"Whereas, in the death of Dr. Willis R. Smith of El Paso, Texas, the Medical and Surgical Association of the Southwest has suffered the loss of one of its most loyal and representative members; and,

Whereas, by his lovable personality, his genial spirit, friendship for his brother physician and devotion to his patients, he endeared himself to the community in which he lived; be it

Resolved, That this association record these attributes and spread them on the minutes of this annual meeting and that a copy be forwarded by the secretary to the family of the late Dr. Willis R. Smith, and also to the medical and lay press."

The election of officers being next in order, the following nominations were made and duly elected to the respective offices:

President—Dr. J. R. Van Atta of Albuquerque.

First Vice-President—Dr. H. H. Stark of El Paso.

Second Vice-President—Dr. Willard Smith of Phoenix.

Secretary-Treasurer—Dr. W. Warner Watkins of Phoenix.

With regard to the place for the 1924 meeting, the invitation of the Maricopa County Medical Society of Arizona for the Association to be their guests at the 1924 meeting was accepted, after some discussion.

The newly elected president, Dr. J. R. Van Atta, was conducted to the chair. He expressed his appreciation of the honor done him, his sense of responsibility in the realization of what the Association means to the Southwest, and his determination to carry through the work of the organization to the best of his ability.

With regard to the time of the meeting, there was some discussion, and the Association finally expressed its desire that the Board of Trustees set the meeting for the second week in November, or not later than this.

Motion was made that the Association express its appreciation to the newspapers of El Paso for their courteous and liberal handling of the news of the convention.

A rising vote of thanks to the El Paso County Medical Society for their entertainment of the Association and excellent clinical program was voted.

Adjournment sine die.

W. WARNER WATKINS,
Secretary.

BE IT RESOLVED, that the El Paso County Medical Society, El Paso, Texas, express its deep appreciation of the work done by Dr. John W. Tappan, Passed Assistant Surgeon, United States Public Health Service, in the eradication of typhus fever, in the establishment of the original Government clinic (later taken over by the City of El Paso), for his untiring efforts to secure mosquito control work and the reorganization of the City Health Department, and for his excellent public health work during the past seven years while stationed in this city as a commissioned officer of the United States Public Health Service, and previously as Acting Assistant Surgeon.

BE IT FURTHER RESOLVED, that a copy of this Resolution be forwarded to the Surgeon General, United States Public Health Service, Washington, D. C., as a recognition, appreciation and commendation of the excellent work done by the United States Public Health Service at El Paso, Texas, through its representative, Passed Assistant Surgeon John W. Tappan.

It is the hope of this society that the gratifying work achieved by the Public Health Service in the past may be continued in the future.

EL PASO COUNTY MEDICAL SOCIETY,
By F. O. BARRETT,
Secretary-Treasurer.

A SQUARE DEAL FOR OUR ADVERTISERS

We recently sent out four or five hundred circular letters to our subscribers asking that they play fair with our advertisers. If a member of any one of the organizations which helped to establish this journal has a feeling of appreciation for the creditable magazine which we now possess, he was asked to show this by patronage for the advertisers who supply the funds to publish the journal.

Our financial statement for 1923 showed that three-fourths of our income is from the advertisements—only one-fourth being supplied by the subscriptions from the members of the interested medical organizations.

Among the many responses which we received to our request for this fair play reciprocity we quote two to illustrate the feeling which we hope is fairly general among our readers. If it is not general, we will not rest until it becomes so, for nothing else will be honorable.

Dr. R. B. Homan of El Paso writes:

"I have just received a copy of the circular letter which you are mailing out, and I will be very glad to comply with your request by writing to a number of the advertisers, and I assure you that I will be very glad to help you in any way I can. I wanted to tell you how much I appreciate the value of the journal you are getting out now."

Dr. W. O. Sweek of Phoenix writes:

"In reply to your letter of December 8 I wish to state that I have made it an absolute rule to buy only from such concerns as advertise in the local journal in every possible instance.

"I don't believe that it is proper for any doctor to buy from any concern that does not advertise in his own medical journal. It is a matter of loyalty that every doctor should observe. If the manufacturers and other advertisers who sell medical supplies, etc., wish to work this territory, I think it is only fair that they should advertise in the journal that is devoted to the men who live here."

If this spirit were the universal one among our 750 or more members of the constituent societies, we could have funds to publish any size journal we desire. Every year, at this time, we lose a number of very desirable advertisers, the reason invariably given being: "We did not receive any inquiries in response to our ad in your journal."

The remedy for this is too obvious for comment.

THE SOCIETY OF FRIENDS OF MEDICAL PROGRESS

The medical profession has been subject to much humiliating misrepresentation during recent years, through the pernicious activities of the "anti-vivisectionists". It hardly seems that an intelligent public could be so misled as to believe that the unselfish labors of scientists in research and biolological laboratories are linked up with deliberate cruelty to animals. Yet, in several states, the almost insane ravings of these "antis" have been accepted as true by a considerable proportion of the supposedly intelligent people.

Believing that it is not fair to expect the searchers for truth regarding human diseases and their cure to work with one hand and defend themselves from such cowardly attacks with the other, a number of prominent educators and scientists have recently founded the "Society of Friends of Medical Progress", whose object is thus stated in their pamphlet explaining the purpose of the organization:

The Society of Friends of Medical Progress (whose officers are all laymen) has been founded because there is an organized, widespread and dangerous movement on foot to discredit the medical profession, to procure legislation which will prevent the progress of medicine and surgery, to break down the bulwarks of preventive medicine, and thus expose our people to the attack of diseases which are now held in check by science, but which formerly took frightful toll of human life. This anti-medical campaign is being conducted by a considerable number of organizations professing various aims, such as antivivisection, antivaccination and medical liberty, but all seeking by fair means or foul to bring into disrepute scientific methods of combating disease, and to substitute therefor every known form of psuedo-science and quackery. * * *

After giving several examples of the methods of these organizations, the pamphlet continues:

The Society of Friends of Medical Progress is organized to counteract the effect of false

propaganda of this sort by spreading the truth concerning scientific medicine and the methods by which it is gradually conquering disease and lengthening human life.

We stand for scientific preventive medicine, including standardized and properly tested vaccines, serums and antitoxins, because it is a fact known to all well-informed people that they hold in check or cure diseases like smallpox, typhoid fever, the epidemic form of cerebro-spinal meningitis, and diphtheria, and thus save many thousands of lives every year. And we believe in useful drugs like ergot and pituitrin (to mention only two of them) now universally used to prevent dangerous hemorrhage at child-birth.

We stand for vivisection, properly conducted and practically painless as it is today in American laboratories, because it has given us these and many other blessings, and because it is the only means by which we can hope for further conquest of disease.

The type of men who are thus coming to the assistance of scientific medicine is illustrated by the officers of this "Society of Friends".

Honorary President—Charles W. Eliot, LL.D., President Emeritus, Harvard University.

Acting President—Thomas Barbour, Agassiz Museum of Comparative Zoology, Cambridge, Mass.

Secretary—Edward Wigglesworth, Director, Boston Museum of Natural History.

Treasurer and Assistant Secretary—Mary Lee Thurman.

Field Secretary—Ernest Harold Baynes.

Honorary Vice-Presidents—

Dr. James Rowland Angell, President of Yale University.

The Rt. Rev. Alexander Mann, Bishop of Pittsburgh.

His Eminence, William Cardinal O'Connell, Archbishop of Boston.

Dr. Ellen F. Pendleton, President of Wellesley College.

Ernest Thompson Seton.

Owen Wister.

THE BROOKLYN EXTENSION PLAN OF POST-GRADUATE STUDY

An interesting development in medical society work is the plan which has been worked out jointly by the Medical Society of the County of Kings and the Long Island College Hospital, the details of which appear in the October issue of the Long Island Medical Journal.

A joint committee of the society and the hospital announce a series of lectures and intensive instruction designed to meet the needs of all classes of practitioners.

The Practical Lecture Series consists of a course of clinical lectures of one hour each given each Friday afternoon.

The Extension Series consists of practical courses given each afternoon between four and six o'clock.

The Intensive Series are courses covering six weeks, of from four to ten hours a week. This latter course embraces studies in Tuberculosis, Syphilis, Focal Infections, Fevers; Clinical Laboratory Work; Diseases of the Kidney, Heart and Blood Vessels; Diseases of the Blood, Spleen, Pancreas and Liver, etc.

It would seem that a modification of some such plan of study could be applied in any locality where there is a hospital. The Yavapai County plan contains many of the elements of the Brooklyn Extension Plan. The scheme of utilizing autopsy material, as outlined in the article by Dr. Waite, in this issue, is another modification of the same idea—to make better doctors by encouraging study of the material immediately at hand.

WEST SIXTH STREET MEDICAL BUILDING
(Los Angeles)

The new Medical Office Building at 1136 West Sixth street in Los Angeles, where most of the staff of the Good Samaritan Hospital will be located, will house several former Arizonians who are making their name and fortune in the "city of the big wind."

Dr. Henry Dietrich, formerly chief surgeon of the Arizona Copper Company, is one of the best-known pediatricians in the west.

Dr. C. T. Sturgeon, formerly of Globe, Arizona, is steadily coming to the front in his field of surgery.

Dr. Roy Thomas, formerly of Phoenix, is rapidly making himself a reputation in the front rank of the internists of the coast.

Dr. J. M. Pearson, formerly of Glendale, Arizona, will be associated with Dr. Thomas in the future.

More than forty doctors will be located in the building.

TO THE MEMBERS OF THE NEW MEXICO MEDICAL SOCIETY:

I take this method of notifying you that your annual dues to the New Mexico Medical Society for 1924 are now payable.

Many men wrote me last fall that the reason they had not paid their dues was that they had not been notified they were due. They are due on the first day of January, and I trust it may not be necessary that I should be put to the trouble of writing each of you personally.

Those who are members of county societies should see your county secretary at once and pay him your annual dues for 1924.

Those who are "members at large" should send their dues direct to me without further notice.

The dues to the state society are three dollars. The various county societies have different dues, but both county and state society dues are paid to the county secretary, where there is a county society.

It is my ambition, when the time comes to make my report to the American Medical Association, to be able to report our state society as 100 per cent in good standing.

Doctor, when you read this, do not pass it by with the thought that it means the "other fellow." IT MEANS YOU.

COME ACROSS. LET'S BE 100 PER CENT THIS YEAR.

Here's Hoping,

C. M. YATER, Secretary.

Roswell, New Mexico.

BERNALILLO COUNTY MEDICAL SOCIETY

At the regular meeting, held on December 5, Dr. Scott, the County Health Officer, read the rules and regulations given out by the State Department of Health, covering the activities of his office.

The annual election of officers was held, resulting in the following new officers:

President—Dr. David C. Dodds.

First Vice-President—Dr. J. A. Reidy.

Second Vice-President—Dr. C. C. Davis.

Secretary-Treasurer—Dr. L. B. Cohenour.

Censors—Drs. P. G. Cornish, Jr., L. B. Cohenour and J. R. Van Atta.

The new president, Dr. Dodds, promised either to make something out of the society the coming year or to put it on the rocks. This idea appealed to the members, since activity of almost any sort is desired by them. The members present assured him that if he would carry out his threat, they would stand by with whatever stimulant would be required to prevent an untimely death. The aim is to make a society which the members cannot afford to miss.

DR. J. R. VAN ATTA of Albuquerque was elected president for the year 1924 of the Medical and Surgical Association of the Southwest at the annual meeting recently held in El Paso.

MEETING OF STAFF OF ST. MARY'S HOSPITAL

Roswell, New Mexico.

(Dr. C. M. Yater, Secretary.)

The general staff of St. Mary's Hospital met at the usual hour at the

hospital on December 18, 1923, with the following members present: Drs. Beeson, Bradley, Galloway, Goodsell, Kinsinger, McClane, Phillips, Presley, Swearingin and Yater.

This being the annual meeting, officers for 1924 were elected, as follows:

Chairman—Dr. C. F. Beeson.

Vice-Chairman—Dr. H. A. Ingalls.

Secretary-Treasurer—Dr. C. M. Yater.

Executive Committeeman for three years—Dr. D. D. Swearingin.

A very interesting case was reported by Dr. W. E. Goodsell. This case was that of a lady aged 45, married, mother of three children, labors normal but difficult. For five years has had attacks of uterine bleeding covering weeks at a time. Complained much of pelvic weight and pain, especially in the left lower quadrant of the abdomen. At times had the sensation of "everything falling out". About a year ago these symptoms all became accentuated. Six weeks ago began to bleed more profusely and felt weak and had much pain. When seen by Dr. Goodsell she had had a diarrhea six weeks. She said that when her bowels moved there was a sensation of an obstruction in the rectum and that this had been present from time to time for more than a year. At this time this sensation was much worse, and whenever her bowels moved there was terrific tenesmus without much result except a watery stool, all of which large doses of carthartics merely aggravated. Physical examination showed a large, well-nourished woman, very anemic, abdomen tender on pressure.

Vaginal examination revealed a large, hard mass filling the cul-de-sac, protruding more to the left than the right. It was tender, very hard and bleeding freely through the vagina. In the hollow of the sacrum another mass the size of a croquet ball and as hard. Apparently it was not connected with the tumor, although they could not be separated. It was irregular in outline, immovable and apparently bleeding from the rectum. The rectum was highly inflamed, excoriated, everted and bleeding.

At first it was thought to be an inoperable cancer of the rectum complicating uterine fibroid.

Rectal examination revealed a tremendously hard and large mass of impacted feces back of the fibroid tumor.

The fecal mass was broken up with much difficulty and removed. The abdomen was then entered and a large fibroid tumor and cystic left ovary removed.

Evidently the tumor had obstructed the rectum enough so that the fecal matter collected back of it.

The patient made an uneventful recovery.

MONTHLY STAFF MEETING OF ST. JOSEPH HOSPITAL, ALBUQUERQUE, NEW MEXICO

(November Meeting.)

The meeting was opened by a discussion of a co-operative nurses' registry, which should have night and day service, and handle all nurses as well as special calls for doctors. The proposition was approved.

Dr. P. G. Cornish, Jr., presented a case of carcinoma of the breast in a tuberculous woman with a collapsed lung. The woman is 43 years of age and had an advanced right unilateral lesion for several years. Under right pneumothorax, her temperature had receded, but she still was a bed patient when Dr. Cornish first called to see the woman for a phlebitis of the left arm extending from the wrist to the axilla and incidentally a small lump in the lower inner quadrant of the breast. Upon examination she was found to have a tumor of the breast the size of an olive, which was fixed to the fascia. There were several glands in the axilla, one about the size of the original growth. Now the question arose whether the glands were metastatic from the breast or inflammatory from the phlebitis. It was decided to do a frozen section under local anesthesia, which was carried

out. The diagnosis by frozen section was adeno-carcinoma, and the operation continued to complete radical excision of the breast with the total removal of the pectoral muscles and the contents of the axilla. Pathological examination of the glands of the axilla showed them to be carcinomatous. The convalescence of the patient was prompt and uneventful, and the tuberculous condition did not seem to be affected. The patient received radium treatment after operation. This case is a splendid example of the amount of major surgery that can be done upon a patient in the advanced stages of tuberculosis, providing the toxemia is lessened by pre-operative pneumothorax.

Discussion by Dr. Peters: "It is a sound principle that if the toxemia of a tuberculous patient can be relieved by pneumothorax before operation that patient has a much better chance of weathering the storm of operation. It has also been advocated in tuberculous pregnant women with a unilateral lesion and should prove a success."

Dr. W. H. Woolston presented a case of fracture of the skull in a boy 9 years of age, with complete recovery. The child was struck by an automobile and hurled to the pavement, becoming at once unconscious. Preliminary examination revealed a boy in profound coma, bleeding from the nose and right ear, ecchymosis over the left eye, and a large contusion above the left ear. At the hospital the same conditions were noted, together with a slight contusion over the left anterior superior spine of the ilium, the nose and right ear still bleeding, the pupils contracted, equal and reacted to light. There was no nystagmus or strabismus, the reflexes were normal, the heart was fast and slightly irregular, the breathing was slow, but no other injuries could be found. The next day the patient was still unconscious, the temperature was 102, the pulse averaged from 120 to 80, and the respirations were down to 8 per minute. There was slight exaggeration of the reflexes on the left side. The next day the respirations were 6, and the type stertorous. The pulse was very irregular and the temperature was 100. A stereoradiogram showed a fracture starting in the temporal fossa and extending backward and downward to the base. The next day the condition was the same, with the patient growing more restless and decompression was decided upon, which was done the following day. A piece of bone some 4 cm. square above the left ear was removed, and the dura laid open. A large quantity of blood and serum gushed forth at section of the dura, the brain substance bulged into the opening, but did not pulsate. The dura and scalp were closed without drainage, the patient left the table in fair condition. The first two days following the operation the condition remained much the same except that the pupils reacted to light on the second day. The following day the boy regained consciousness and recognized his parents, but still could not talk. In a day or two he was able to talk and improved steadily until he left the hospital in 20 days. This case was cited to illustrate that many cranial fracture cases with unmistakable signs of compression will be greatly benefited by decompression, which can generally be closed without drainage, provided the wound is not grossly infected.

(December 18, 1923.)

Thoracoplasty, with a report of three cases by Dr. W. R. Lovelace.

Case 1. A woman in the late twenties having extensive tuberculosis on the right side with cavitation of the right apex, was treated by artificial pneumothorax starting in August of 1913. By the last of December, 1913, she had developed a small amount of fluid, but the compression was continued until late in 1914. At this time the lower lobes had entirely expanded and had become adherent. There was some exudate still in the upper chest cavity, but it was allowed to remain. She came to New Mexico in

1915 and had no further trouble until 1920, when she developed pain in the upper right chest, with temperature and swelling under the right breast. A puncture was made anteriorly and drainage was instituted, which with violet ray treatments very greatly decreased all the symptoms and the general condition was on the mend. In December of 1921 drainage still continuing, a right posterior thoracoplasty was done in the attempt to collapse the upper chest wall. A portion of the six upper ribs were removed under gas oxygen anesthesia. The recovery was uneventful, and while this patient still drains a small quantity of pus daily, the temperature has been normal since the operation, and the general condition is much improved.

Case 2. An ex-service man, 25 years of age, who has had tuberculosis for three years. He had been in Albuquerque for two years with a cavity the size of a dollar under right clavicle. He raises about an ounce of sputum a day, with temperature up to 101. The other lung is normal, as is also the base of the right. Four months ago he developed a kidney upset, with albumen and casts. This, however, cleared up under hydrotherapy and rest. His urine having been normal for some weeks, on November 26, 1923, a posterior thoracoplasty was done on the right side under novocain infiltration anesthesia, the upper eight ribs being resected. The recovery was uneventful. There was no dyspnea or mediastinal flutter and the cough was not extreme. In two weeks the patient left the hospital with a normal pulse and temperature and a steadily increasing compression. At the present time he is up and about, and with the sputum greatly decreased bids fair to return to normal life.

Case 3. A man, age 37, from Ohio, who first started to cough and raise blood in 1913. At that time he went to Denver for three months with good results, for he returned and worked until 1918, when he had a relapse, with rather large hemorrhages. He then went to an Ohio sanatorium for some months, with no improvement, and was discharged as chronic. In 1920 he went to Tucson, where he gradually became worse. In November, 1923, he came to Albuquerque, where he presented the following picture: Left apex one large cavity down to the sixth rib. The left base thickly fibrotic. The right chest slightly mottled but inactive. He raised four ounces of thick pus each day and he was very weak and emaciated. His temperature was 100 to 102. On November 24 a left posterior thoracoplasty was performed under gas oxygen anesthesia. The second to the tenth ribs, inclusive, were resected. The patient left the hospital in eight days and at the present time is up and about, raises only about a teaspoonful of sputum a day and has no temperature. He is still very weak, but the case looks very hopeful.

B. F. COOK, M. D.,
Secretary.

EL PASO COUNTY MEDICAL SOCIETY

Minutes of a regular meeting held at the University Club on November 5, 1923.

The meeting was called to order by the president at 8:15 p. m. There were present 33 members and one visitor.

The minutes of the previous meeting were read and approved.

Dr. W. L. Brown made a more detailed report of the case in which a spider had bitten the patient upon the penis, previously reported by Dr. Paul Gallagher. This report, with the discussion of Dr. Gallagher's case previously given, will be reported in Southwestern Medicine next month (February). Dr. Brown exhibited the spider in a fruit jar and gave an interesting description of the spider as obtained from the library of the High School.

Dr. Brown presented a second case of fracture of the fourth cervical vertebra and exhibited a section of the spinal cord showing the compressed area.

Dr. Paul Gallagher described a clinical case of an anomaly of the mesentery. There was also retroversion of the uterus, appendicitis and stricture of the left ureter.

Dr. M. I. Leff described a clinical case of dysmenorrhoea of 20 years' duration, the result of an infantile uterus. She was operated eight times. She became a morphine habitue because of the severe pain.

Dr. L. G. Witherspoon read a paper entitled "Scalping; Report of a Case." Discussion was entered into by Drs. W. L. Brown, James Vance, B. F. Stevens and Major Wright, all of whom commended Dr. Witherspoon for his excellent work. The paper will be sent for publication in Southwestern Medicine.

"Liver Function" is the title of a paper read by Major C. R. Haig. This intensely interesting paper brought to date all the research work for the past five years and gave a detailed description of the phenoltetrachlorphthalein test.

Dr. W. W. Waite announced the arrangement of clinics for the three days of the meeting of the Association of the Southwest. The first day will be a "free for all" for medical and surgical clinics at the hospitals or in the offices; the second day will be for surgical and the third will be for medical clinics. Dr. Waite repeats his request for good cases well worked up.

Pertaining to the program for Monday, December 17, he stated that this date was being held for the annual banquet until such time as the society should decide upon the date. He asked what the society wishes to do in this regard.

The president expressed his preference for having our own banquet separate from that of the Association of the Southwest. This opinion seemed to prevail. Dr. W. L. Brown thinks the banquet of the Association of the Southwest should be left to the officers of that organization. He thinks we would be assuming too much authority to arrange for it. Dr. Waite thinks since it is our function to entertain the visitors we are not assuming any authority. The matter rested at this point without any further action.

Major Haig announced that Colonel Shockley has arranged to entertain the association at William Beaumont Hospital and extended invitation to the visitors. He asked that the date be arranged. Upon suggestion of Dr. W. L. Brown, the evening of the first day was set.

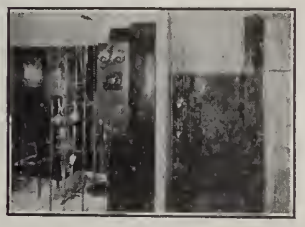
Under unfinished business the president announced that the case of Dr. Egbert's as brought up at the previous meeting was out of order. He invited motion to reopen the case, but none was offered. Dr. Homan made an extensive explanation of the relationship of a group of doctors with the Gateway Club and Dr. Laws went into further detail in showing that these doctors did not constitute a committee of the El Paso County Medical Society. After much discussion Dr. Laws stated that he saw no reason why Dr. Egbert's original motion should not be enacted and made motion that the Gateway Club be advised that there was no committee of this society created to act in an advisory manner with that organization; he invited Dr. Egbert's second to the motion, which he gave. Dr. M. I. Leff offered an amendment to this motion that such a committee be created. It was seconded by Dr. Laws and passed by standing vote of the society. The original motion also passed.

No other business to be transacted, vote to adjourn was entertained at 10:32 p. m. F. O. BARRETT,
Secretary.

DR. DAVID HENRY LAWRENCE, 1101 East California street, El Paso, having been appointed, by direction of the President, a Lieutenant Colonel, Medical Officers' Reserve Corps, took the oath of office on December 3. From 1910 to 1913 Colonel Lawrence served in the Texas National Guard, while during the World War he was surgeon of Base Hospitals at Camp MacArthur, Texas, and at Fort Bliss.



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Medical Director

CALVIN B. WITTER, M.D.
Roentgenologist

EDWIN D. WARD, M.D.
Assistant Medical Director

T. C. CROWELL, M.D.
Pathologist

YAVAPAI COUNTY (Ariz.) MEDICAL SOCIETY MEETINGS

On November 20 the society met at the Yavapai Club, there being twenty members present. Groups I and III were pitted against each other, with the Cabot Cases. Group II acted as judges, and decided that Group III had attained a slightly higher rating.

On December 4 the meeting was at Whipple Barracks, and there were twenty-nine members present, Groups I and II contesting with each other. Group III acted as judges and gave the higher rating to Group II.

On December 18 the meeting was at the Yavapai Club, twenty-two members being present, Groups II and III contesting with the "Cases". Group I acted as judges and gave the higher rating to Group II.

The total percentage rating, which is based on attendance, discussion and diagnosis, of the three groups, for the fall season, is as follows:

Group I—78.3 per cent.
Group II—83.6 per cent.
Group III—87.4 per cent.

Group I has served notice on the other two groups that after January 1 they may "watch her smoke"; that there is nothing to the Biblical handicap that "the first (group) shall be last."

The first meeting after the Christmas vacation will be on January 8, when the meeting will be an open one, papers, clinical cases and demonstrations occupying the program. The Cabot Cases will be resumed on January 22, with Groups I and III in competition.

Concerning the operation of our "system" of post-graduate study, we are able to report greater enthusiasm, better attendance and more careful preparation of the "cases" than in any previous year. We can heartily commend the plan to any county society situated as is Yavapai, in a sparsely settled section.

C. E. YOUNT,
Secretary.

THE GILA COUNTY (Ariz.) MEDICAL SOCIETY

This society met at the Dominion Hotel Friday evening, December 14, having as its guests Drs. J. S. Pritchard and W. A. Mortensen of the Battle Creek Sanitarium, and Dr. W. Warner Watkins of Phoenix.

Dinner was served in a private dining room to the society members and guests, and the program of the evening was given in the same room.

Dr. Mortensen, who is the head of the Department of Internal Medicine of the Battle Creek Sanitarium, spoke on "Cardiac and Renal Efficiency". After a short review of the successful efforts of the medical profession in diminishing the incidence of and mortality from several well-known diseases, such as malaria, typhoid, tuberculosis, he passed to the possibilities in similar efforts against diseases of the heart and kidneys, the mortality from which is, at present, steadily increasing.

To prevent actual disease of the heart, and to preserve its efficiency after disease has crippled it, is a problem requiring great foresight, careful and repeated examination in early life, prophylactic removal of infection foci, and continuous control of the physical activities throughout life, when permanent lesions have occurred.

The importance of blood pressure determinations and detailed attention to technic, with a critical interpretation of the pressure readings, was dwelt on at some length.

Dr. J. S. Pritchard, who is the head of the Department of Chest Diseases at Battle Creek Sanitarium, gave a very interesting presentation of the difficulties attending the diagnosis of chest diseases, chiefly the mistake of calling other lesions tuberculosis. He gave several instances, however, of cases which were diagnosed as non-tuberculous and which proved to be tuberculosis.

Four methods of examination are used in all cases: (1) History, (2) ordinary physical examination, (3) internal inspection or x-ray, (4) lab-

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oratory. Any one of these may be the deciding factor in the diagnosis of a given case, but all must be used for a thorough investigation. Usually, the different methods will be in general agreement, each adding its due quota of information, but sometimes one method will be at variance from the others, and great judgment is required to correlate them.

The following members of the Gila County Society were present: Drs. Adams, Sawyer, Fox, Risser, Kennedy, Horst, Sotel, Watts, Gunter, Berlin, Slaughter, Harper, Irwin, Swackhamer, Miller and Cron.

MARICOPA COUNTY MEDICAL SOCIETY (Ariz.)

The regular meeting of this society was held on December 15, the guests of the evening being Drs. W. A. Mortensen and J. S. Pritchard of Battle Creek Sanitarium, Battle Creek, Mich.

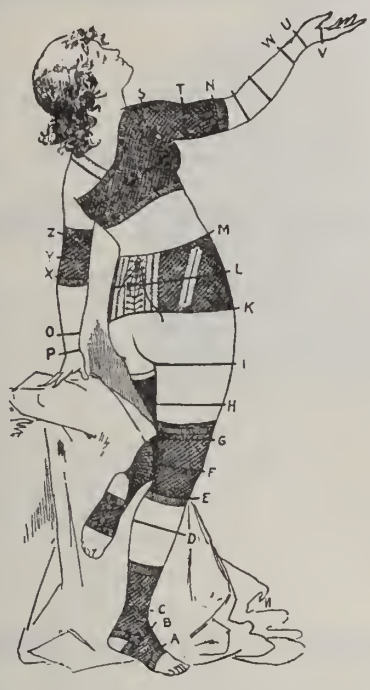
The society was invited to hold their meeting at the Deaconess Hospital, and a very excellent dinner was served there. Those attending the dinner and meeting afterwards were Drs. Wilkinson, Felch, Tuthill, Smith, Holmes, Goss, Gudgel, Goodrich, McIntyre, Damerson, Hicks, Bailey, F. W. Brown, Tankersley, Milloy, Harbridge, Schwartz, Ellis, Drane, C. B. Palmer, Wheeler, Shields, Jordan, Sult, Thomas, Thayer, Mills, McNeil, Little, Neff, Hawkins, Watkins, Phillips, Couch, Vivian, Stroud, O. H. Brown and Carson.

The application of Dr. Frank J. Milloy was received and favorably acted upon, making him a member of the society.

Dr. Pritchard then gave his talk on "Chest Conditions Simulating Tuberculosis," with lantern slides. He emphasized the fact that mistakes could be made in both ways, either calling some other condition a tuberculosis, or missing a tuberculosis which is present. There are four distinct methods of investigation—and they must all be used to make up a comprehensive diagnostic examination; they are (1) the history, which is the most important single method of eliciting important facts; (2) physical examination, which should include (3) the x-ray examination, and (4) laboratory methods. Sometimes one and sometimes another will give the deciding information; some emphasis was laid on guineapig inoculation of the sputum. Among the conditions which had been mistaken for tuberculosis were lung abscess, bronchiectasis, Hodgkin's disease, lung malignancy, cardiac disease, aneurism, foreign body in bronchus and cervical rib.

Dr. Phillips stated that most of his cases are seen after other doctors have had chances to make all the mistakes; had a recent case where a dentist in New York gave up his work and came west for tuberculosis which proved to be aneurism of the aorta. Also sees cases of lung syphilis which are usually picked out by Dr. Watkins; they usually occur in patients who have had early inadequate treatment of the primary lesion, and the disease of the lungs develops later in life after having had a family of healthy children. Recalls in particular one case, aged 52 or 53, who was taken with asthmatic symptoms, then lot of digestive disturbances; finally a gastro-enterostomy was done without relief; had pain and fever, was diagnosed consumption and sent west to die; he was very thin, coughed all the time, spat a lot, had had a few small hemorrhages, and no appetite; his lungs were wet all over; was diagnosed by x-ray as syphilis, treated conservatively with many mercury rubs; he got well and went back to work.

Dr. Orville H. Brown recalled one case in which the Wassermann was negative, but was considered syphilitic; was brought in several years later with diagnosis of tuberculosis; sputum was repeatedly negative and then earlier diagnosis was recalled; Wassermann was now positive; she had consolidation in the upper part of one lobe, which rapidly disappeared under mercury.



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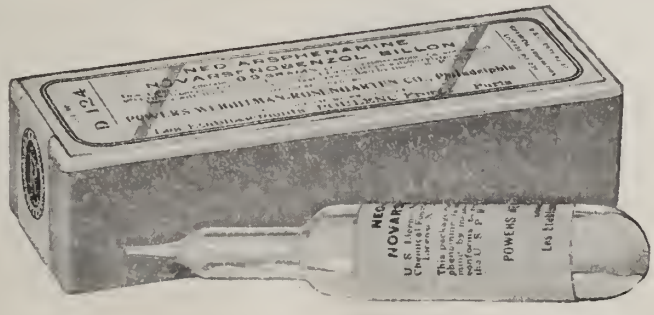
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Dr. Tuthill recalled one case of cancer of the lung which lasted three or four years in which bloody pleurisy was characteristic.

Dr. Stroud recalled case of a woman, bed ridden for five months, who had been variously diagnosed. Dr. Holmes examined her, together with x-ray, and did not think she was tuberculous. Gave history of syphilis some years before and taking three doses of .6 gr. salvarsan; had eroded cervix and negative Wassermann, and at every menstruation would spit a little blood; gave her .6 gr. neosalvarsan and after six weeks she gave a positive Wassermann.

Dr. Holmes has been struck with the number of patients who come to him and who have never had sputum examined—more than half of them giving this history. No uncommon thing to see people who have been sick under the care of doctors for three or four years and have never had the sputum examined; doctors seem to think sputum examination is old fashioned; they want all sorts of complicated and fancy tests and pass by the sputum. Repetition of x-ray examination is necessary. Recalls a case of Hodgkin's disease sent to Phoenix from Massachusetts General Hospital as tuberculosis; x-ray in Phoenix showed clearly that it was Hodgkin's disease and he was turned right around and sent back to Boston.

Dr. Harbridge inquired whether it was possible to have a lung tuberculosis and sometimes later a malignancy develop there.

Dr. Felch recalled a case of a man 50 years old who had never been sick; developed pain in right chest with difficult respiration. Dr. Monical diagnosed malignancy, which was confirmed by x-ray by Dr. Goss. Died in less than a week and postmortem showed growth about three or four inches in diameter which simply shut off respiration by pressure on the trachea.

Dr. Watkins recalled that tuberculosis patients could have lung abscess entirely independent of the tu-

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VICTOR

berculosis, and that lung abscess might break down a healed tuberculous focus. He also inquired regarding the resolution of true tuberculous lesions. The tendency among roentgenologists has been to regard a lesion which disappears within a comparatively short time as non-tuberculous. Recalled a case of tuberculosis and carcinoma in the same lung, sent to the laboratory some years ago by Dr. Southworth of Prescott. With regard to lung syphilis; sometimes there is a picture which demands that syphilis be excluded or confirmed. Usually, since the influenza epidemic flooded the country with bizarre chest lesions and shadows, the x-ray interpretation must be guarded, and all that can usually be said is that a shadow "is the typical shadow of a tuberculosis" or that it "suggests some other type of infection than tuberculosis." This lays the final decision where it belongs, on the clinician.

Dr. Pritchard states that malignancy in an old tuberculous lung is reasonable and entirely possible. Has one case of malignancy which developed in tuberculous lung, as a secondary lesion from a primary one below the belt. Does not believe that all sudden infiltrations extending into the lung must fibrose in order to prove they are tuberculous. There are lung lesions produced by tuberculosis which clear up by resolution; surrounding a tubercle or group of tubercles there will be an inflammatory zone, or a hyperemic zone, which may clear up very rapidly. Have examined forty cases of pulmonary malignancy in the past two years; have seen two cases of lung carcinoma which lasted two years.

Dr. Mortensen gave a very interesting talk on the subject of "Cardiac and Renal Efficiency." The object of this talk was to analyze and emphasize the significance of the observations which every physician is able to make on his patients. The meaning of increased blood pressure, especially in young people; the relation between systolic and diastolic pressure; the significance of a rising or falling systolic pressure, in conjunction with a rising or falling pulse pressure. He dwelt at some length on the significance of changes in pulse or blood pressure, with the patient lying down as compared with the findings when placed upright; he uses a special table to bring the patient upright without any exertion on the part of the patient. The cardiac efficiency is to be determined and the activity of the patient kept within the limits of the heart capacity.

With regard to the kidney, he regards the specific gravity as the most significant urinary finding. The ability of the kidney to excrete concentrated urine after a twelve-hour fast and without water, together with its ability to excrete water when taken in abundance (two and a half liters within two hours), are very excellent measures of its efficiency. The blood chemical findings which are always used by him are of greatest significance in more advanced kidney disease. He did not pay so much attention to the dye excretion test, though always uses it as a part of a routine examination.

Dr. Jordan recalled that Cabot, in his course in diagnosis, stated that if he had to choose between the blood pressure and the stethoscope, he would take the blood pressure. You cannot guess at the blood pressure. With regard to heart conditions, Dr. Cabot stated that out of 17 patients referred to him for heart disease, 11 of them had normal hearts; this was because diagnosis was based on murmurs alone, which frequently does not mean anything.

Dr. Harbridge, recalling the relation between cardiorenal conditions and migraine, wonders whether the doctor made it a practice to investigate the region of the pituitary body, and whether it is not important to investigate the fundus of the eye for those changes which are so common in kidney disease.

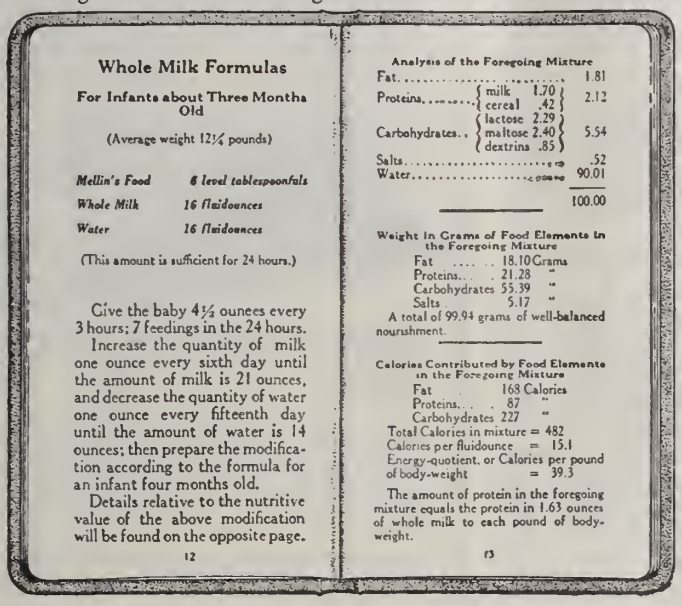
Dr. Vivian stated that the relation between the function of the kidney and the function of the heart is al-

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Give the baby 4½ ounces every 3 hours; 7 feedings in the 24 hours.

Increase the quantity of milk one ounce every sixth day until the amount of milk is 21 ounces, and decrease the quantity of water one ounce every fifteenth day until the amount of water is 14 ounces; then prepare the modification according to the formula for an infant four months old.

Details relative to the nutritive value of the above modification will be found on the opposite page.

12

Analysis of the Foregoing Mixture

Fat			1.81
Proteins	milk	1.70	2.12
	cereal	.42	
Carbohydrates	lactose	2.29	5.54
	maltose	2.40	
	dextrins	.85	
Salts			.52
Water			90.01
			100.00

Weight in Grams of Food Elements in the Foregoing Mixture

Fat	18.10 Grams
Proteins	21.28 "
Carbohydrates	55.39 "
Salts	5.17 "

A total of 99.94 grams of well-balanced nourishment.

Calories Contributed by Food Elements in the Foregoing Mixture

Fat	168 Calories
Proteins	87 "
Carbohydrates	227 "
Total Calories in mixture	= 482
Calories per fluidounce	= 15.1
Energy-quotient, or Calories per pound of body-weight	= 39.3

The amount of protein in the foregoing mixture equals the protein in 1.63 ounces of whole milk to each pound of body-weight.

13

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ways important and asked whether the liver function is not coming into more prominence. The case mentioned by Dr. Mortensen in which there was no finding at all except albumen in the urine brings up the question of a nephrosis. It is also important to determine whether there are organic changes in the urinary apparatus, because you can get the same blood chemical picture from mechanical obstruction to the passage of urine as you can get from damage to the kidney substance by disease.

Dr. Mortensen reminded that the kidney has many functions, the elimination of water, salts and products of protein metabolism, and we must keep all of them in mind. Has examined many cases of migraine by x-ray and never found anything definite; there is a distinct difference between the migraine headache and the pituitary headache, and the description given by the patient will differentiate them at once. It is very important to have the fundus examined, and it is always done; arteriosclerosis will show there earlier than anywhere else. It is important to examine the liver in cardiac disease. The variability in the dye elimination makes this method somewhat undependable, but it has its place and should be used in every thorough examination.

Meeting adjourned shortly after 10 o'clock to meet on January 5.

STAFF MEETING OF ST. JOSEPH'S HOSPITAL
(Phoenix, Ariz.)

The December meeting of the staff was held on the 20th, in the lecture room, the following members being present:

Doctors Brockway, Sweek, Eaton, Charvoz, Drane, Bailey, Ellis, Felch, Smith, Thayer, Couch, Milloy, Wilkinson, C. B. Palmer, Stroud and Watkins.

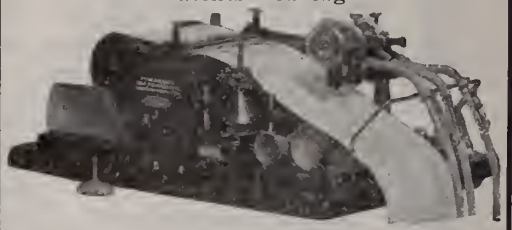
Dr. Wylie being absent on account of court attendance in Yuma, the meeting was conducted by the secretary, Dr. Watkins.

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Minutes of the last meeting were read and approved.

The amendments to the constitution presented at the previous meeting were read again and unanimously adopted.

The following cases were then taken up and discussed.

CASE 1

This was a woman, eight months' pregnant with her second child, brought into the hospital in labor and with eclampsia, on November 7.

Her mind was cloudy and no clear history obtainable on entrance; she was an obese woman, apparently about eight months pregnant. Fetal heart was audible though weak; pulse 170.

Cesarian section was performed immediately under local anesthesia. Patient was in convulsions on the operating table, but these ceased abruptly as soon as child was delivered and some blood lost.

Urine has .167 per cent of albumen on the morning of the 8th, this gradually disappearing in subsequent examinations.

Blood showed 3,780,000 reds and 23,800 whites on the 8th.

Patient's mind was clear on the 9th, she was nauseated and vomiting and apparently had a paralytic ileus. This gradually disappeared, and patient left hospital on the 18th in good condition.

Baby weighed five pounds at delivery, was put to breast on day after operation and at time of discharge from hospital weighed five pounds and was healthy.

DR. WILKINSON: This patient came to my office on September 7 asking that I take care of her; on September 17, urine had sp. gr. of 1018, no albumen or sugar; on October 2 urine was the same. She called at my home late in afternoon of November 5, complaining of severe headache and left specimen of urine; this had sp. gr. of 1030, and boiled almost solid by heat test; I immediately drove to her home, arranged diet and gave purge; following morning was called at 7 o'clock by message that patient was in stupor; saw her at 7:30 and found her almost comatose, blood pressure 170, but she had not had any convulsions. I asked for consultation and called Dr. Charvoz, and we agreed that the best way out was by Cesarian section; ordered ambulance and on way to hospital she had her first convulsion; on the operating table she had two spasms.

After leaving the hospital, on November 23, she passed 3300 c.c. of urine with sp. gr. of 1012, albumen and sugar negative; blood pressure 125, pulse 80; prine today was 1018 in sp. gr., no albumen or abnormal sediment; involution is complete and baby is healthy.

DR. SWEEK: There is nothing particularly interesting about a Cesarian section under local anesthesia. It is an easy operation.

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Time required in this case was 45 minutes for anesthesia and operation; there was no complaint from the patient except when the uterus was delivered from the wound after the child had been removed; then she complained of pain in the back. The vessels were allowed to bleed freely, no attempt being made to stop the flow; the placenta was separated immediately and the uterus allowed to lie for five minutes and bleed, but the amount of bleeding was very slight. The uterus was then closed in layers. The patient's pulse dropped to 110 and she was in much better condition when she left the operating room than prior to the operation.

The first case which I recall as being reported in Arizona of Cesarian section under local anesthesia was by Dr. Smith, formerly of Clifton. It is an ideal way to do a Cesarian section, no matter what the conditions are which indicate it; the most common indication for Cesarian section (eclampsia) is also a condition which makes a general anesthesia very undesirable. The aftermath of such a case is always better if the operation is done without general narcosis. In Cesarian section, a common cause of disaster is failure to remove all particles of membrane; we carefully wiped out the uterus with gauze.

Pollen Asthma

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Question: Was the patient entirely unconscious? Answer: She was not; she complained of pain in the back shortly after the child was delivered. However, she had no recollection of the operation.

DR. EATON: This woman not being a primipara, the indication for the Cesarian section was the choice of the anesthetic. Perhaps labor could have been induced and extraction performed. Have seen patients who had no convulsions before and who died afterwards from convulsions.

DR. CHARVOZ: As I remember the case, Cesarian was chosen in this case because it was quick and certain and because we knew she was not going to have a general anesthetic. If she had been going to receive chloroform or ether, it would have been necessary to do something else.

DR. WILKINSON: My experience with eclampsia has not been pleasant; recall case of a woman in mining camp who had been in convulsions several hours; delivered baby and woman died next day; here in Phoenix several years ago had a case where two of our best surgeons operated under general anesthesia, saved the baby, but the woman died 24 hours later. The reason for choosing Cesarian section under local anesthesia in this case was because it seemed to offer the best hope of success. The final results in the case have justified the course adopted.

CASE 2

This patient was a woman in her third pregnancy at about three and one-half months, entering hospital on October 6. Nausea and vomiting had started with beginning of pregnancy and had grown steadily worse despite all therapeutic measures.

There was history of a chronic indigestion suggestive of recurrent duodenal ulcer.

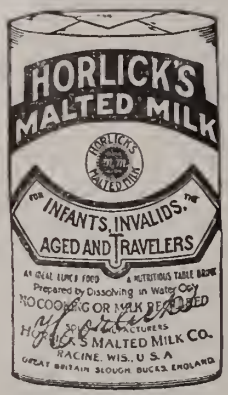
Temp. was 98.6; pulse 120 to 140, weak and thready; B. P., 110/80; resp. 20.

P. E.: Nutrition poor, dehydrated emaciated; pale, sallow and dark under eyes; tongue raw and beefy; head and neck otherwise negative. Lungs negative. Sharp valvular sound at apex and blowing systolic murmurs over base. Abdomen tender in epigastrium; tumor in midline above symphysis, of size and consistency of a three and a half months' pregnancy. Costo-vertebral tenderness on right side. Pelvic bimanual shows uterus in normal position; no tear; adnexa not tender. Blood on October 10 shows reds 4,420,000, whites 15,000. Urine showed sp. gr. from 1005 to 1010, trace of albumen at each of five examinations.

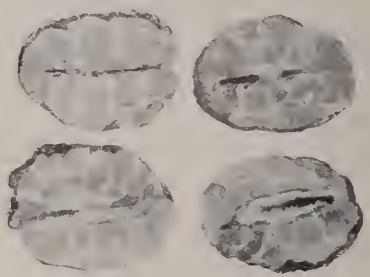
Patient was vomiting every hour on entrance to hospital. The medical treatment and hospital care extended over a period of three weeks, at the end of which time vomiting had ceased and patient was on a fairly liberal diet and was discharged.

DR. CHARVOZ: Repeated urine examinations were done because it looked like a very heavy urine, but did not prove to be so. We did so many things for this woman that I do not recall all of them. In the hospital she improved, but it was about the time in her

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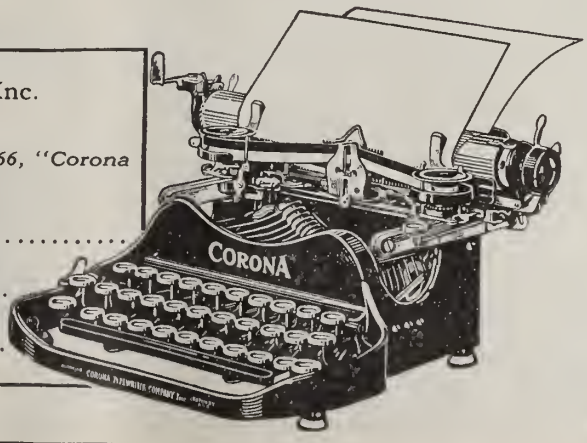
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pregnancy when we expect improvement. We tried to get her filled up with water, and managed to get her consent to introduce water under the breast, using normal saline about 250 c.c. the first time with 10 minims of adrenalin introduced into the stream. By this means and proctoclysis, we managed to introduce a large quantity of water. We gave bromide by rectum, 30 grains every four hours. Had previously tried washing her stomach, without results. Did not bleed her because of the low blood pressure, and absence of any signs of mental cloudiness.

Question: Did you give her corpora lutea? Answer: I used the whole ovary ampoules, given intravenously, but without result.

DR. WILKINSON: About five weeks ago a young married couple were passing through the city; the woman was about two months pregnant and was vomiting constantly. I gave her one-half c.c. of obstetrical pituitrin, and she had a slight discharge; gave her three or four more, which completely controlled her vomiting except for the normal nausea of pregnancy.

CASE 3

Male, age 35, married, brought to the hospital on October 9 with the history that he had been picked up in an alley about 9 a. m., unconscious.

P. E.: There was a severe contusion and superficial abrasion on the left side of his scalp and a complete paralysis of the left arm and left leg, with entire loss of motor power and reflexes. Patient was semi-conscious, excitable.

X-ray examination showed a stellate fracture over the right Rolandic area of brain, which was taken to be the cause of the motor paralysis either by concussion or laceration of the brain tissue or by clot formation, or by pressure from displaced fragment of bone.

Blood Wassermann was negative.

Progress: Within ten hours patient showed a great deal of improvement, consciousness was returning, he was able to identify himself and voluntary motion could be demonstrated in the big toe of the left foot. He identified himself as an individual who had been missing since September 15, when he was supposed to have been drowned. He had no memory of his actions between September 15 and October 9, and his whereabouts during that period are absolutely unknown.

Within 36 hours after his injury, the use of his left leg returned; the left arm remained paralyzed until the 17th of October until, after the use of electricity, it returned completely within 24 hours.

Subsequent information revealed that the hat he was wearing on September 15 had been torn and the brim crushed by a forceful blow over the right temple area. This is supposed to account for his primary head injury and loss of memory and it is presumed that on the evening of October 9, in Phoenix, he sustained a circulatory accident in the brain, with a small hemorrhage and stroke, that he fell over backwards and severely in-



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jured the parietal area of his skull on the left side.

This restored his memory, except for the period between September 15 and October 9, which remains a blank and probably never will be recalled.

Urine and blood findings were normal.

On second x-ray examination, Dr. Watkins stated that the stellate fracture in the posterior portion of the frontal bone near the vertex surrounded a loose portion of bone, and that the appearance of the fracture would confirm the diagnosis that it is old and probably due to the first injury.

Patient left the hospital in good condition on October 21.

DR. EATON: His memory was blank for past events, except that he could recall having a severe headache several days before his second injury and buying aspirin; he also had several other fantastic ideas, like going over a long bridge, of seeing horses race, etc. Treatment was expectant, except that he was given over 700 grains of potassium iodide and it agreed very well with him. Had a letter from him on November 6 and he said that he was O. K.

DR. WILKINSON: Was called to see this man when he was flrst found. Though he could remember nothing between the time he was injured in Wisconsin and here, on the morning following his injury he asked me where his black pocketbook was; that he wanted to take care of his money. I first counted $840, and he said, "You are mistaken, I have more than that; there should be $900." A recount showed that he did have $900. Although he could not remember anything, he knew how much money he had.

DR. FELCH: The most interesting thing about this case was his financial amnesia. He wrote letters of appreciation to doctors who attended him, expressing his gratitude, but stating that in his estimation he did not owe them anything, because, if he had been conscious, he would not have had so many doctors.

DR. CHARVOZ: Just recall a case that shows there is something more to an amnesia than just a mere crack on the head. An elevator fell some distance to the basement; none of the occupants of the elevator were rendered unconscious, but one man had both legs broken and was taken to a hospital. He never could remember any of the details of the fall or the trip to the hospital or any subsequent event until he was almost well. The doctors in attendance would try to teach him about it and would tell him over and over, but he would forget it. Apparently memory furnishing some severe shocks, Nature furnishes us with something better than memory—a sort of forgetter.

DR. WATKINS: Am sorry that Dr. Mills is not here, as he has been studying up about this case, and he is not at all convinced from the evidence that there was a true amnesia present. There are many indications in the case which suggest that the patient remembers what he wants to remember and forgets that which he desires to forget.

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CASE 4

Married woman, age 49. Entered hospital October 31.

Complaint: Vomited blood. For ten years has had stomach trouble. Has distress in upper abdomen which comes on three to four hours after eating. Always relieved by taking soda. Very often has been awakened between midnight and 2 a. m. by discomfort in stomach, which is relieved by taking soda. Stomach always feels better immediately after meals, seldom in the forenoon. Very often in the afternoons has spells in which perfect freedom from all symptoms is had which may last several weeks or months. Yesterday felt nauseated and vomited about one pint of blood. Stools for several days have been black and tarry. This a. m. feels very weak. Vomited one quart of material which was mostly blood and fainted afterward. Blood pressure has ranged from 140 to 240 systolic.

P. H.: Has had more or less distress recently, due to menopause. Has had trouble of stomach for ten years. Three years ago had antrum infection as result of infected tooth. Had several operations before infection was cured.

P. E.: Apex in left mammary line slightly enlarged; no murmurs audible. Generalized tenderness across upper abdomen.

Blood on October 31, hemoglobin, 70 per cent; erythrocytes ,2,430,000; leukocytes, 8,000.

Urine on October 1 normal.
Stool had blood.

DR. MILLOY: This patient had two hemorrhages in the office, and was given morphine and atrophine and sent to the hospital.

She was given magnesium and calcium carbonate every hour until midnight, and from midnight until morning calcium carbonate every hour; two hypos of morphine, ⅛ grain each during this time. On the second day, from 7 a. m. to 9 p. m., she was given every forty minutes a powder of 10 grs. of calcium carbonate and 30 grains of soda; from 9 p. m. to 7 a. m. she was given 40 grains of calcium carbonate every hour. On the third day the treatment was the same as on the second. Beginning the fourth day in the hospital, she was given every hour an ounce of milk and cream, from 7 a. m. to 7 p. m.; on the half hour she was given the same powders as above. Milk was stopped at 7 p. m. and from then until 9 a. m. she was given the same powder on the half hour and 40 grains of calcium carbonate every hour during the night. Milk was first increased to two ounces and then to three ounces each time, and on the sixth day began to give her small feedings of cream of wheat and some toast, and at noon soft-boiled egg and toast. By the tenth day she was getting milk and cream every hour and these small feedings.

I began now to aspirate the stomach every night at 9 o'clock, generally finding three or four ounces in the stomach; about two weeks longer she continued on this regimen, making three and one-half weeks from her entry into hospital. After the first ten days the stomach was empty every night at 9 o'clock and generally in the afternoon at 2:30. At the end of three and a half weeks she was placed on the fourth week treatment, consisting of breakfast at 7 a. m., and then every half hour, from about 7:30 to 9:30, she would take powders 1 and 2 alternately; at 10 o'clock three ounces of milk and cream; at 12 o'clock dinner, and from 12:30 to 2:30 powder every half hour; at 3, 4 and 5, take milk and cream; and from 6:30 to 9, take powders; at 9 o'clock stomach was aspirated. Gradually the powders at night are reduced; after ten days the powders at 5 and usually those in the morning are left off, and then those at 3 and 4; then those at 1 and 2. After going home has not taken any powders after 9 o'clock. She has had no free hydrochloric acid. On November 15 she was x-rayed, with the following report:

X-Ray Examination: The examination of this stomach under the fluorscope showed marked spasm of pylorus and a very small, hypermotile cap, which could never be made to fill out in a normal outline. There is evidently an ulcer of the duodenum present; the exact size and location of this could not be made out, the cap being contracted. We secured no outline of the cap on the films.

She was discharged on November 28, and from the time she first went on treatment she has never had distress. When she entered the hospital her pulse was 110 and during the first two weeks it continued from 110 to 90; her temperature ranged from 99 to 101; this temperature had entirely disappeared at the end of three weeks.

DR. GOODRICH: The doctor seems to have gotten a very fine result in this case. The most positive indication for surgical intervention in duodenal ulcer is severe hemorrhage. We feel that stomach ulcer should be removed on account of the tendency to malignancy; although most internists do not agree with Sippy, duodenal ulcer can be treated without jeopardy from malignancy. But many of them do bleed and there are many fatalities from bleeding of duodenal ulcer. The selection of treatment for these cases depends on the type of ulcer, which can be determined by the history, but more accurately by x-ray. From the x-ray report apparently this ulcer could not be seen. If these are old crater ulcers, they could not be cured by medical treatment. Many of them which we think are cured are not cured, but simply relieved of the pylorospasm which causes a large amount of their pain. Do not believe that the deep crater ulcers, even though there has not been any perforation, can be healed by medical treatment. We know how hard it is to cure an old varicose ulcer of the leg; these ulcers of the stomach and duodenum have just as hard margins as the leg ulcers, and do not believe, on account of histological changes, that it is possible to cure these by medical treatment.

DR. STROUD: Endorses what Dr. Goodrich says. An old deep crater will not heal; may "cure" it two or three times and then it will be operated and stay cured. If they bleed, they should be excised. Another factor is that many times there are multiple ucers. Has a case of gastric ulcer caused by trauma, who has been on Sippy treatment since diagnosis, but without such a favorable result.

DR. EATON: The description of the symptoms of this case sounds more like gastric ulcer than duodenal ulcer. Did she have a stomach ulcer also?

DR. SMITH: Am in a very unenviable frame of mind about duodenal ulcer, having had a couple of them die recently after operation. Have been struck all evening with a peculiar interweaving of physiology and pathology shown in three of the cases discussed. If experience proves anything, the experience of this patient of Dr. Milloy's will give him a powerful reason to consider that he has her in a condition to be operated on; he has gotten her out of immediate danger, and now is the time to operate. We know the periodicity of duodenal ulcer and that is why he should take advantage of the present opportunity.

With regard to the case of pernicious vomiting. In pregnancy we have ordinary vom-

iting, excessive vomiting and pernicious vomiting. Pernicious vomiting does not begin at three and one-half months. In excessive vomiting, when the uterus rises out of the pelvis, the vomiting ceases spontaneously.

In connection with the amnesia case, we seem to have forgotten the most frequent and striking example of amnesia which is physiological. Has not done any obstetrics for years, but one thing that struck me as peculiar when a women is being confined for the twelfth or fifteenth time was how completely she forgot all of the pains of her previous childbirths. Physiological amnesia is necessary for the preservation and propagation of the race.

DR. SWEEK: Does not think it is good terminology to speak of duodenal ulcer as a crater; usually it is small and heals with a stellate scar. Usually recurrent ulcers have foci of infection somewhere else in the body, and are probably produced by small emboli in the blood vessels. If Dr. Milloy's case is relieved, gains weight, and foci of infection are cleaned up, would leave her alone; if she has another attack would treat her the same. If she has constant symptoms that will not yield to treatment, she is a case for simple gastro-enterostomy; if a large area of the mucous membrane is eroded, ablation of the pylorus to stop stomach contents from passing into the duodenum. Does not think that trauma can ever be regarded as a factor in producing ulcer of stomach or duodenum. All ulcers seen by me are treated medically first and all are given anti-syphilitic treatment.

DR. WATKINS: My observation by means of x-ray of ulcers treated by medical regimen and those treated surgically have given me the firm general impression that more ulcers disappear after medical treatment than disappear after gastro-enterostomy. I do not see as many post-operative ulcers now as formerly, because there has been a distinct tendency among the surgeons in this community—as a whole—to operate less and less frequently. The surgeon with whom Dr. Milloy is associated I do not think has performed a gastro-enterostomy for simple ulcer since Dr. Milloy came to Phoenix.

DR. MILLOY: In answer to the question as to whether there was also a stomach ulcer or not. There is no way of telling, in any case of so-called peptic ulcer, whether it is gastric or duodenal, except its localization by x-ray. They can give exactly the same symptoms. Whenever I guess before the x-ray examination, I generally guess wrong.

The principle of this treatment is based on the fact that ulcer is caused by some interference with the circulation to a small area, either by bacteria or something else which shuts off the blood supply; the strong gastric juice causes digestion of this devitalized area and there is a raw spot. The treatment aims to stop gastric digestion; the action of gastric juice is due to pepsin in an acid medium; when the free hydrochloric acid is neutralized the gastric juice is inert, and the ulcer is permitted to heal.

This particular patient is told to continue on this treatment for a year. That is where the failures come in—when the medical treatment is not kept up long enough. Many patients stop treatment as soon as the symptoms are completely relieved, and then the symptoms return, and we hear of "recurrent ulcer." If they will continue treatment for a year, we do not expect a return of the symptoms. Cases of penetrating ulcer put on this treatment, with absolute rest in bed, have been seen to disappear completely in two weeks from the time they started treatment, proven by x-ray. Of course, the disappearance of the niche does not mean that the ulcer has healed; the scar must be completely replaced by normal mucous membrane of the stomach and this occurs in time.

CASE 5

Mexican man, age 31, entered hospital November 5.

P. H.: Had been injured in a mine five months before, resulting in complete paralysis with loss of bladder and rectal control.

P. E. Skin was dry below point of injury and inclined to ulcerate, patient having bed sores. There is complete paralysis below point of injury, including bowel and bladder. All reflexes are gone. Spinous process of the first lumbar vertebrae is bent downward and to the left; a great deal of callous can be felt around the spinous processes of the first and second lumbar vertebrae. Right foot is crushed at the arch. Small toe had been removed since injury by some other surgeon. Muscles are paralyzed below point of injury and degenerative changes are taking place.

Urine showed alkaline reaction, trace of albumen and pus cells.

DR. COIT HUGHES: No encouragement was given this patient as to results of the operation, but he requested that it be done, for whatever faint hopes it might have for his improvement.

The x-ray findings made before entering hospital showed crushing of the first lumbar, the body of the bone being wedge shaped, the lamina being broken and the spinous process turned downward and to the left; it had healed and callus formed around it.

The patient was operated on November 6, a spicule of bone being found embedded in the cord, opposite the first lumbar vertebra, and this was removed.

Patient remained in the hospital nine days, and then was taken home. His general condition has improved some. His bed sores and ulcers have almost healed, and he complains of sensation when his wife rubs him with alcohol; also complains of pains in the calves of his legs. There has hardly been time to determine how much improvement will occur.

DR. McCALL: We removed the lamina and spinous process from the first lumbar vertebra and part of the lamina of the second. The lamina was crushed down upon the cord; this was removed along with considerable of the callus. We had no great

hope over the outcome, but felt sure we would do him no harm. He wanted something done, and the improvement even at this short time is greater than we had hoped. There was evidently compression immediately after the injury, as the paralysis was immediate.

DR. SWEEK: If the paralysis comes immediately after the injury, the operation should be performed immediately. If the cord is separated, there will be no regeneration. If the paralysis is due to slow pressure, that might regenerate if the operation is done soon enough. Does not think there is any record where an operation done after six months has been followed by regeneration.

DR. GOODRICH: If there is gradually increasing paralysis, there is a positive indication for laminectomy. In many of these cases there will be paralysis in a short time and you do not know whether there is separation of the cord or whether it is due to pressure. There is great difference of opinion about laminectomy. You are not going to do great harm either way. If the paralysis is due to hemorrhage, it will get well anyway, and if you have separation of the cord, you will do no good by operating.

DR. STROUD: Was called in consultation in Cochise ounty on a case of bad back injury some time the night before. Discovered that the man was totally paralyzed; operated and found cord completely severed. In another case in the same county a man was struck on the back, a doctor did a laminectomy and it was the cause of his dismissal because of the hastiness.

DR. SMITH: We all seem to have pretty much the same idea about this cord business, but in this as in many other of our instances of positive knowledge, this knowledge may be subject to revision. In the current number of the British Medical Journal there is an article by a neurological surgeon, relating instances in which large unbridgable gaps are made in certain peripheral nerves which have parallel nerve trunks. For example, when three or four inches of the ulnar nerve is torn away; in such instances, sometimes as late as 18 months after the injury, he would make anastomoses of the proximal and distal ends of that severed nerve into the radial nerve. In many such cases he would get practically complete restoration of function of this severed nerve. This rather changes our ideas about the regeneration of nerves, as well as about the necessity of a continuous connection of the entire neuron system. It is possible that some of the ipsi dixits of the fathers of surgery may have to be revised.

The time having arrived for adjournment, the discussion was closed at this point, the two remaining numbers on the program being postponed until the January staff meeting.

W. WARNER WATKINS,
Secretary.

ABSTRACTS

Stock Poisoning Plants of the Range—C. D. Marsh, M. D., Bureau of Animal Industry, Washington, D. C., Texas State Jour. of Medicine, July, 1923.

Some of the important plants which are poisonous to range cattle and sheep in Texas, Arizona and New Mexico and the bordering country of Mexico are the following:

Esclepias Galioides (milkweed). This is different from what is usually known as milkweed, the leaf being narrower. Two or three ounces will kill a sheep and corresponding quantities will affect horses and cattle. The animals die in convulsions resembling those caused by strychnine.

Daubentoma, commonly known as the coffee bean, quite abundant in Texas, is very poisonous to sheep and goats.

Delphinium, or larkspur; about thirty pounds to the thousand of animal is fatal. A hypodermic dose of eserine with a little strychnine is almost a specific for larkspur poisoning.

Hymenoxys, rubber plant or pingue, in northern New Mexico and southern Colorado.

Isocoma, or rayless goldenrod, causes the milk sickness or trembles of cattle, and the poison is excreted in the milk.

Loco plants; there are several kinds of these interesting plants about which much has been written. The blue loco or Astragalus diphysus is quite common in Arizona, but is found also in New Mexico, Colorado, Utah and Nevada; it has long been known as a horse poisoning plant, but also causes heavy losses of cattle. The purple or Texas loco is probably the first plant so recognized. The most common is the white loco or rattle weed; the plant is widely distributed and grows in abundance, the blossoms looking like snow at a distance. Unlike most of the poisonous plants which are eaten by mistake, cattle form a habit for the loco weeds, and finally get so they will eat nothing else and die from starvation. The effect of the loco plant is on the nervous system.

Stipa Vaseyi, or so-called sleepy grass, affects particularly horses, having a narcotic effect.

AMERICAN ARSPHENAMINES NOW THE WORLD'S STANDARD

A few years ago there was not a gram of arsphenamine made in this country, not a gram. We were abjectly dependent on other countries for our supply of this very important drug.

Now, thanks to the Dermatologial Research Laboratories, of Philadelphia, we are in a different and more complacent position. Not only is arsphenamine now being made in America in quantity sufficient for all needs, present and future, but the quality is such as the world has never before known. As the result of researches and refinements in the manufacture of the drug, we now have an

arsphenamine of greatly enhanced effectiveness, along with a greater margin of safety for the patient, than any of the imported drugs afforded.

As for neoarsphenamine, the first supplies of which also came from Europe, the circumstances are much the same. A very superior quality of drug, in fact the best drug known to syphilologists, now comes from the Dermatological Research Laboratories, branch of The Abbott Laboratories, Chicago. It has been endowed by chemists with a trypanocidal activity almost, if not quite, that of arsphenamine, whereas originally the activity of this related arsenical was considerably less.

AMERICAN ASSOCIATION FOR THE STUDY OF GOITRE

This is a new organization, and although there sometimes seems to be a surplusage of societies, there is no gainsaying the fact that the subject of goitre requires "study". This organization is to include surgeons, internists, pathologists, anesthetists and radiologists,and their first annual meeting will be held at Bloomington, Ill., January 23 to 25, with headquarters at the Illinois Hotel.

There will be operative clinics at St. Joseph Hospital and Mennonite Hospital, with general sessions, exhibits and registration at the Unitarian Church. Free exhibit space to advertisers in the state journals will be available.

The program recognizes that there is a place for medical and radiologic treatment, as well as surgery, in the study of the goitre problem. The president of the association is Dr. E. P. Sloan of Bloomington, Ill., and the secretary, Dr. J. D. Mochelle of Indianapolis, Ind.

BOOK REVIEW

A MANUAL DF THE PRACTICE OF MEDICINE. By A. A. Stevens, M. D., Professor of Applied Therapeutics in the University of Pennsylvania. Eleventh Edition, entirely reset. 12 mo. of 645 pages, illustrated. W. B. Saunders Company, Philadelphia and London: 1923. Cloth, 3.50 net.

The appearance of the eleventh edition of this manual of medicine is a good testimonial of its popularity. In this work the student or general practitioner will find much valuable information on most medical diseases. The author does not consider the venereal diseases nor those peculiar to the organs of generation. Many of the considerations of disease are not sufficiently detailed to be relied upon wholly, but this could not be expected in an elementary work of this kind.

Syphilis receives very little comment. The laboratory methods are very instructive. The book is well arranged and of convenient size. The illustrations are few in number, but instructive. H. F. G.

BOOK REVIEW

AN INTRODUCTION TO THE STUDY OF MENTAL DISORDERS. By Francis M. Barnes, Jr., M. A., M. D., Associate Professor of Nervous and Mental Diseases in the St. Louis University Medical School, Neurologist to St. Mary's Hospital, Consultant Neurologist to St. John's Hospital, Consultant Psychiatrist to the St. Louis City Sanitarium, Consultant Neuropsychiatrist to the U. S. Veterans' Bureau, Ninth District, St. Louis. Second Edition. St. Louis. C. V. Mosby Company. 1923. 295 pages. Price $3.75.

The author states in his preface that "it has seemed advisable to include in a single volume my 'Introduction to the Study of Mental Diseases' and 'Notes on Mental Diseases', inasmuch as they constitute but parts of the same subject, the 'Notes' being but the clinical application of the matters contained in the 'Introduction' ". One is impressed with the feeling that, although intended primarily as an aid to the student in taking up the study of psychiatry, the book is none the less valuable to him who intends to devote his time to general practice. The author is a psychologist. He knows how to and does present the fundamentals of psychology in a very clear and interesting manner. The book could be read with profit by the man in general practice as well as the specialist in whatever branch. Psychology is its keynote, first and last. Chapters on memory association and emotion are especially commendable. If there is a medical school requiring the slightest knowledge of psychology as an entrance requirement or graduation requirement other than that gained casually in the short course in nervous and mental diseases I am not aware of it. Unless one specializes in mental diseases he usually goes through life ignorant of the fundamentals laid down in this book and it is to his detriment as a physician. More power to Dr. Barnes and his kind. A. C. M.

BOOK REVIEW

DIAGNOSTIC METHODS. A guide for history taking, making of routine physical examinations and the usual laboratory tests necessary for students in clinical pathology, hospital internes, and practicing physicians. By Herbert Thomas Brooks, A. B., M. D., F. A. C. P. Professor of Clinical Medicine, College of Medical Evangelists, Los Angeles, California. Formerly Professor of Pathology, College of Medicine, University of Tennessee, Memphis, Tennessee. Fourth Edition, with 52 illustrations. St. Louis. C. V. Mosby Company. 1923. 109 pages. Price $1.75.

The book is truly what the author claims for it. In the preface to the second edition he says: "This little book is intended for medical students, hospital internes and physicians who have a limited amount of time to give to laboratory work." For the man who cares to devote even more time to this line of work it will be found an excellent guide in a more extensive study of the same subject. A. C. M.

DR. WILLIS R. SMITH

Whereas, in the death of Dr. Willis R. Smith of El Paso, Texas, the Medical and Surgical Association of the Southwest has suffered the loss of one of its most loyal and representative members; and,

Whereas, by his lovable personality, his genial spirit, friendship for his brother physician and devotion to his patients, he endeared himself to the community in which he lived; be it

Resolved, that this association record these attributes and spread them on the minutes of this annual meeting and that a copy be forwarded by the secretary to the family of the late Dr. Willis R. Smith, and also to the medical and lay press.

DEATH OF DR. L. P. KAULL

The many friends of Dr. L. P. Kaull, who was formerly chief surgeon of the United Verde Hospital, at Jerome, and who moved to Los Angeles about three years ago, were grieved to learn of his tragic death recently. The full details have not been reported, but he is said to have committed suicide.

Dr. Kaull was highly esteemed by the medical profession of Arizona, having served as president of the Yavapai County Medical Society and as vice-president of the Arizona State Medical Association.

ROSWELL (N. M.) NEWS ITEMS

DR. H. V. FALL of Roswell is sojourning in southern Texas for a time for the benefit of his health.

DR. HENRY BECKER of Portales, N. M., spent the day in Roswell on December 20, having come for his son, who has been under treatment in St. Mary's Hospital for some time. It is very gratifying that young Becker has regained his health and was able to return home with his father.

DR. JANETTE REID of Santa Fe, N. M., spent a few hours in Roswell recently. The medical profession of the city are sorry that her visit was so short and hope to have the pleasure of a longer visit from her in the near future.

NEW MEXICO NEWS ITEMS

DR. R. O. BROWN of Santa Fe, who was on the program of the Southwest Association for their annual meeting in El Paso, was detained at home by the serious illness of his father, who has recently died. Dr. Brown will have the sympathy of his many friends in New Mexico.

DR. and MRS. P. G. CORNISH, JR., of Albuquerque are proudly announcing the birth of a daughter on November 24. Their two-year-old son, Tommy, insisted that the baby should be named "Aunt Pearl", but was finally persuaded that Charlotte would be a better name for the little sister.

DR. M. K. WYLDER of Albuquerque recently made a trip to St. Louis in the interest of the new Hotel Franciscan.

ALBUQUERQUE PHYSICIANS in attendance at the meeting of the Medical and Surgical Association of the Southwest in El Paso were all on time for their train on Thursday evening, excepting Dr. G. S. McLandress. (Note: He was having dinner with me, so his alibi is gilt edged.—Editor.)

DR. R. M. MARSHALL recently came to Albuquerque to make his home. He came from Colorado. Dr. and Mrs. Marshall are living at the Hotel Franciscan.

DR. HARRY A. MILLER of Clovis spent Friday, the fourteenth, in Albuquerque, en route to his home from the meeting in El Paso.

THE FRANCISCAN HOTEL, at Albuquerque, held its formal opening on December 15, the medical profession taking a prominent part in the dancing and entertainment of the occasion. The medical men of Albuquerque have long looked forward to a hotel which will give them adequate provisions for entertaining conventions, and this beautiful structure is something to which they can justly point with pride.

THE NEW MEXICO MEDICAL SOCIETY is to be congratulated upon the activities of its secretary, Dr. C. M. Yater of Roswell. Dr. Yater shows every evidence of being a "go-getter" and his office is one where this is a necessity.

DR. HARLEY YANDELL of Phoenix, who moved to Los Angeles about December 1, is located in the Westlake Professional Building, at Westlake and Orange streets.

DR. EARL M. TARR, formerly of Phoenix, is now located in the Westlake Professional Building, Los Angeles, with practice limited to diseases of children.

DR. HARRY L. GOSS, director of the Goss Laboratory at Phoenix, spent the Christmas holidays with relatives in the neighborhood of Kansas City.

DR. FRED T. FAHLEN of Phoenix, Ariz., against whom a suit was brought last month for alleged injury done one West in attempting to have him placed in the Hospital for the Insane, was vindicated by having the suit thrown out of court for lack of sufficient testimony to make out a case for the plaintiff.

DR. HENRY LEE JOHNSON, an experienced psychiatrist, has been secured as first assistant at the State Hospital for the Insane, at Phoenix, Ariz. Dr. Johnson comes to Phoenix from the State Hospital in Oklahoma, and prior to his work there he was located at the Louisiana Hospital for the Insane at Pineville, La. He graduated from the Oklahoma University School of Medicine in 1917, and his work has been entirely neuropsychiatry, except for a short period of postgraduate work in roentgeuology. This latter study will fit him peculiarly for the work at the Arizona institution, where an excellent x-ray outfit was installed several years ago, but there has never been a member of the staff, until now, qualified to use it to any advantage.

DR. RAY STONE, prominent surgeon of Battle Creek, Mich., is spending the winter in Phoenix, where his family is sojourning for the benefit of their small son, who suffers with asthma. This is Dr. Stone's second visit to Phoenix.

"IT'S PYORRHEA"

Have you corns upon your toes?
It's pyorrhea.
Have you freckles on your nose?
It's pyorrhea.

When you hurry do you wheeze?
Are you shaky at the knees?
Are you getting hard to please?
It's pyorrhea.

Have you specks before your eyes?
It's pyorrhea.
Has your head increased in size?
It's pyorrhea.

Are you restless when at home?
Are you bald upon the dome?
Did you ever write a poem?
It's pyorrhea.

Is your liver out of whack?
It's pyorrhea.
Have you pimples on your back?
It's pyorrhea.

Are you itchy anywhere?
Have you dandruff in your hair?
Have you any cash to spare?
It's pyorrhea.

—Dental Digest.

ANNOUNCEMENT

The Eighth Annual Clinical Session of The American Congress on Internal Medicine will be held in the Amphitheaters, Wards and Laboratories of the various institutions concerned with medical teaching, at St. Louis, Mo., beginning Monday, February 18, 1924.

Practitioners and laboratory workers, interested in the progress of scientific, clinical and research medicine are invited to take advantage of the opportunities afforded by this session.

Address inquiries to the Secretary-General.

ELSWORTH S. SMITH,
President,
St. Louis, Mo.

FRANK SMITHIES, Sec'y.-Gen'l.,
102 N. Dearborn St.,
Chicago, Ill.

Two Years---What Next?

SOUTHWESTERN MEDICINE has just closed its second year under the present management. During the first year the aim was to publish a journal which would immediately attract attention, and thereby establish a circulation which would hold our advertisers. This was accomplished.

During the past year the aim has been to gather in and record the medical activities of the Southwest, by publication of their papers, by reports of medical societies, by reports of hospital staff meetings, by personal news items about our individual doctors.

We have now reached the point where we must limit our material somewhat, and it becomes necessary for us to know what the members of the constituent societies most desire in THEIR journal.

Members, therefore, are asked either to clip out this page and return it, with the following questions answered, to Southwestern Medicine, Box 1328, Phoenix, Ariz., or to copy off the questions and answer them in a letter to the Editor, at the same address:

1. What features of the journal do you like best?

2. What would you change, or omit?

3. Do you want more news items?

4. Do you want to read about the ACTIVITIES of the Medical Societies more than you do the PAPERS which were read at those societies?

5. Do you want more reports of County Societies and of Hospital Staff Meetings?

6. Do you want these as complete as possible, or abbreviated?

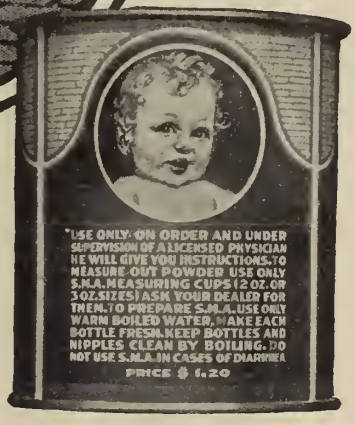
7. Should the scientific articles be exhaustive and complete? Or short, forceful and practical?

8. Will you make it a practice to look over our ads and patronize our advertisers, if they sell what you want?

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AND YOUNG
CHILDREN WELL

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Pertussis
Glycerol Vaccine
Lederle

CONTAINS the bacterial protein of the Bordet bacillus with its original antigenic properties relatively unaltered.

It is supplied undiluted; each vial of vaccine, preserved in glycerol, contains an accurately measured dose and is accompanied by a vial of diluent. The dilution is made by transferring (with a sterile syringe) the diluent to the vial containing the vaccine. The physician makes the dilution at the moment of making the injection.

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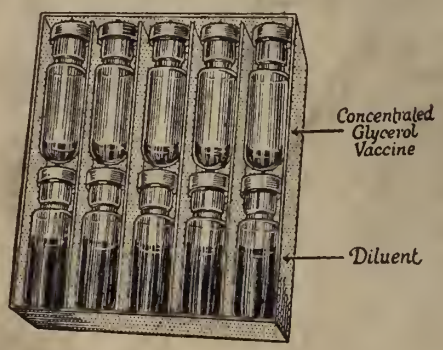
It will not deteriorate.

It is free from autolytic products.

In clinical trials it has not produced toxic reactions.

PACKAGES:

Immunizing package contains three doses. Treatment package contains five doses.



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511 Fifth Avenue
New York

Arizona State Medical Association Meeting in Phoenix April 24, 25 and 26.

New Mexico Medical Society Meeting in Santa Fe May 27, 28 and 29.

SOUTHWESTERN MEDICINE

VOLUME VIII FEBRUARY, 1924 NO. 2

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents—See Advertising Section Page 1

GASTRON

An Alcohol-free Extract of the Gastric Glands

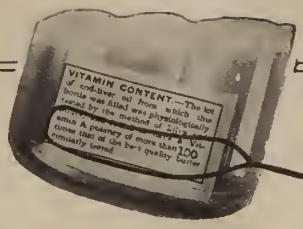
GASTRON is obtained by direct extraction from the entire mucosa, including the pyloric membrane, of the fresh stomach of the pig in an acid-aqueous-glycerin medium.

Gastron presents in a stable potent form a complete gastric extract containing the constituents of the entire gland tissue, as well as those of the peptic cells.

Gastron is designed as a clinical resource in disorders of gastric function.

In 6 oz. amber vial without lettering, in order that it may be prescribed in the original container.

Fairchild Bros. & Foster
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"—a Vitamin A potency of more than 100 times that of the best quality butter."

SQUIBB'S COD-LIVER OIL

—From Lofoten Cod.

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CONTENTS

THE HEART IN TUBERCULOSIS 57
H. S. Bennett, A. B., M. D., Fort Bayard, N. M.

REGIONAL AND LOCAL ANESTHESIA ROUTINELY APPLIED IN GENERAL SURGERY (Discussion) 62
W. O. Sweek, M. D., F. A. C. S., Phoenix, Ariz.

FURTHER EXPERIENCES WITH PEPTIC ULCERS ACCOMPANIED BY DEFORMITIES VISIBLE BY X-RAYS (Illustrated) 70
Max Einhorn, M. D., New York City.

PROGRESS IN THE TREATMENT OF DIABETES 77
F. D. Garrett, M. D., El Paso, Texas.

THE PROGRESS OF SURGERY SINCE ANTIQUITY 79
Wm. R. Lovelace, M. D., Albuquerque, N. M.

EDITORIAL

MESSAGE TO THE ARIZONA STATE MEDICAL ASSOCIATION MEMBERS 85

WHAT TO EXPECT 85

NOTICE TO MEMBERS OF THE NEW MEXICO MEDICAL SOCIETY—PHOENIX MEDICAL MEETINGS—YAVAPAI COUNTY (ARIZ.) MEDICAL SOCIETY—LUTHER EMMETT HOLT 86

EL PASO COUNTY MEDICAL SOCIETY 87

MARICOPA COUNTY MEDICAL SOCIETY 88

ST. JOSEPH'S HOSPITAL (PHOENIX) STAFF MEETING 92

ARIZONA DEACONESS HOSPITAL (PHOENIX) STAFF MEETING 94

MEDICAL ABSTRACTS 101

CHAVES COUNTY MEDICAL SOCIETY 104

NEW MEXICO PERSONAL NEWS 105

ARIZONA PERSONAL NEWS 106

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THE HEART IN TUBERCULOSIS*

H. S. BENNETT, A. B., M. D., Fort Bayard, New Mexico.

No infectious process exists in the physical organism without its effect upon the spring of life. No component part of the physical organism can retain its normal tonus without the continuance of normal stimuli. All endogenous stimuli are dependent upon a healthy blood stream, and the blood stream reacts upon its propulsive organ—the heart, the very body of which it must feed to preserve its own life and life-giving properties. The inherent life of the blood is in the air we breathe and its demands are exacted to the fraction of a cubic meter under threat of disfunction and disassociation. The compensating forces of the body are busy, but they, too, are dependent upon the blood and exact their toll for overtax upon the heart, the heart upon the blood, the blood upon the air, and the air upon the lungs. And thus the cycle of interdependence, interrelation, association and contribution makes for balance or imbalance, strength or weakness, health or disease.

There is a singular paucity in medical literature regarding the heart and its action under the stress and drain of tuberculosis, and those of us who deal, day after day, with the symptoms complex of this disease as its affects the cardiovascular system fain cry out, in Hamletesque: "The thing is out of whack; O, woeful plight that all unaided I must set it right!" It is, however, a subject for very serious consideration and one from which a problem solved will be a step in advance, and redound to the honor of the profession.

For the purposes of this paper, the name "tuberculosis" will be used to mean pulmonary tuberculosis, and the word "heart" to embrace both that organ and its functions. My observations, through years of clinical study, and professional work in diseases of the intrathoracic organs, are offered to you as tentative conclusions based upon tangible and ocular evidence and those physical signs upon which one must, in a measure, place the veneer of his own interpretation—granting well-proven fundamentals as indisputable. They are offered to you honestly and in all earnestness, seeking your free and kindly criticism, courting equally your approval or disapproval, put forth, perhaps, in a selfish hope that I may receive, and, through me, the patients under my care, the benefits of your discussion.

Let us, if you please, visualize the normal heart within the thoracic cavity as it lies, obliquely placed, within its pericardial sac, behind the lower two-thirds of the sternum. Its apex is seen resting upon the diaphragm at the level of the fifth left intercostal space and the eighth dorsal vertebra, and its base extending from the lower border of the second left costal cartilage to the upper border of the third

(*Read by invitation before the Medical and Surgical Association of the Southwest at its Ninth Annual Session, El Paso, Texax, December 13, 1923.

right costal cartilage and at the level of the fifth dorsal vertebra, two-thirds of its bulk being to the left of the mid-sternal line. Behind the sternum, and at the level of the third costal cartilage, the aorta rises from the left ventricle and extends half way up the manubrium, approaching nearest the anterior surface of the chest at the level of the second right costal cartilage and reaches the spine at the level of the fourth dorsal vertebra. Its valve lies behind the third left costosternal junction and is one-fourth overlapped by the pulmonary valve, which lies slightly higher and to the left. The mitral valve is seen lying behind the third intercostal space one inch to the left of the sternum, while the tricuspid lies below and slightly to the left of a line drawn from the inner end of the third left to the sixth right costal cartilages. Anatomically, the aorta, mitral and tricuspid valves are contiguous structures, the mitral being the farthest from and the pulmonic the nearest to the anterior chest wall. The bifurcation of the pulmonary artery may be seen at the level of the fourth dorsal vertebra. Viewed from in front, only the tip of the left ventricle can be seen, the body of the right heart only being in evidence. With the exception of a small triangle of anterior area, the heart is covered by subadjacent and overlying lung tissue and the mediastinal walls.

Immediately contiguous and packed in cellular tissue behind the sternum lie the greatest aggregation of vital organs and viscera to be found in any given space in the human body. The roots of the lungs, including the pulmonary vessels and bronchi, with their primary divisions, and the anterior and posterior pulmonary plexuses; the trachea and its bifurcation with the main bronchi; the remnant of the thymus gland; the arch of the aorta and its descending portion with the innominate and the beginning of the left carotid and subclavian arteries; the bronchial arteries, the superior vena cava, the innominate and azygos veins, and the termination of the inferior vena cava within the pericardium before it enters the right auricle; the pneumogastric nerves with the left recurrent laryngeal and cardiac branches, the phrenic and splanchnic nerves and the cardiac plexuses; the esophagus; the thoracic duct, and complete sets of particular lymphatic glands.

Arising from the aorta, just after it passes from the heart, are the coronary arteries terminating in the great coronary vein which empties into the right auricle of the heart, and accompanying these coronary vessels are the lymphatics of the heart, those of the left heart terminating with the lymphatics of the left lung near the end of the thoracic duct, while those of the right heart terminate between the right subclavian and jugular veins.

As to the nerves, we are chiefly concerned with the eighth pair or pneumogastric, and of that pair with but one of its two primary portions, namely, the true par vagum. This, as we know, gives off branches from which are formed the cardiac plexus, the pulmonary plexus, the esophageal plexus and the coronary plexus of the stomach. Soon, however, after entering the thorax it gives off the recurrent which, embracing the subclavian artery on the right side and the aorta on the left, passes behind these vessels, ascending to the posterior part of the larynx to be distributed to its muscles, and communicates with the great sympathetic, the cardiac plexus, the pulmonary plexus, etc.

The heart, in its functioning, is controlled by the central nervous system, even though this system does not originate it. Whether the auriculo-ventricular action is neurogenic or myogenic is not definitely known, but we do know that the sphygmic impulses are conducted over certain paths of modified muscles or bands which are the remains of the primitive cardiac tube. Keith, Flack and Tawara have described the nodal mechanism. Each pulsation normally starts in a small area of specialized tissue at the junction of the superior vena cava with the right auricle, and known as the sino-auricular node. This node de-

termines the rhythm of the entire heart. From the sino-auricular node the wave of excitation spreads over the auricles, causing contraction of these chambers, and passes on to a second node, situated in the right auricle near the mouth of the coronary sinus, and known as the auriculo-ventricular node. Here the impulse is delayed owing probably to the greater resistance to conduction offered by this tissue. This causative delay is largely responsible for the definite interval between the auricular and ventricular contractions. From the auriculo-ventricular node the impulse passes directly to the ventricles through the auriculo-ventricular bundle which, running along the top of the auriculo-ventricular septum, divides near the union of the posterior and median flaps of the aortic valve into two branches, one to the left ventricle and the other to the right, each branch then subdividing into numerous fibres—the so-called fibres of Purkinje. If for any reason the sino-auricular node fails to excite impulses, or the waves of excitation are not sufficiently strong to reach their normal destination, the auriculo-ventricular node or some other part of the conducting system of specialized fibres or tissue may set the pace. Thus the normal sinus rhythm may be supplanted by various forms of irregular rhythm. Similarly, alterations in the tonus of the modified muscular tissue of the ventricles may disturb the primary stimulus at its source.

Let us now consider briefly the morphology of the lungs in tuberculosis. Strictly a bacterial disease and introduced into the body by the tubercle bacillus, it is seldom unaccompanied by other types of bacteria. Although its beginnings in the body are unknown, its march is determined, insidious and steady. Having once reached the parenchyma of the lung, the destructive work of the tubercle bacillus and its multiplication are really delayed only by the tenacity of the entire physiological system. Certain factors later enter the field of defense, as we shall see. The initial changes are well described by Sims Woodhead:

> "The first stage is an apical catarrh; that is, a congestion of the blood vessels of the mucous membrane, accompanied by a slight proliferation of the epithelial cells lining the air cells, with an increased pouring out of fluid and an emigration of a large number of white blood cells. This catarrhal change is noted in portions of the lung where expansion and contraction are weak or imperfect, as at the apices in adults or about the hili in children."

With the multiplication of bacilli and the breaking down of cellular tissue, small groups of tubercles form, coalesce and press outward their destruction. All structures within their path—alveoli, elastic tissue, peripheral veins, the malpygian vessels—are broken down, and either fibrous tissue is formed as a defense against further aggression or the inflammatory process advances with proliferation, caseation and necrosis. Areas of obliterated pulmonary tissue may become walled about by fibrosis, but other foci form, ulcerate and discharge their deadly virus. While the phagocytic forces of the body may destroy some bacilli, their greatest line of defense is in the formation of fibrous tissue. The fibrous walls of excavated lung tissue contain blood vessels, which, as a rule, become thrombosed and obliterated.

But this very process of healing and repair in the lung tissue is, if continued, working irreparable damage to the heart and circulation. This, with other effects in the lungs of the progress of the disease, bearing upon the cardio-vascular system, as have been indicated or inferred in the foregoing, may well be enumerated and discussed specifically, ad seriatim.

1. Diminishing of the air-bearing space.
2. Obliteration of peripheral veins.
3. Invasion and necrosis of arterial walls.
4. Resultant increase in production and release of carbon dioxide.
5. Thrombosis of pulmonary blood vessels.
6. Absorption and direct reception of the products of infection into the blood stream.

7. Inflammatory action upon nerve sheaths.

All of these structural changes have either their direct or indirect effect upon the organic heart.

The normal lungs have a constant vital capacity and a supplementary reserve proportional to the size of the thoracic cavity and the functional requirements of the entire physical organism for the production of oxygen. If the organic tissues are to maintain their tonus, the blood must not be robbed. If robbed, its nutritive properties are diminished and its containing muscular tissue suffers. The coronary circulation is the life of the myocardium and any deficiency in blood quality exacts its toll. The heart is by so much weakened.

Superimposed upon a weakened heart muscle is the additional burden of keeping up the circulation with a diminished blood supply, and in the right heart by impeded sphygmic pressure against the semilunar valve.

A still further strain is imposed upon both right and left ventricles by the obliteration of capillaries and destruction of arterioles, with frequent sclerosis if the wall is still intact. Back of the semilunars the pressure is carried to the cuspid valves, already strained by the weakened ventricular wall, and now not offset by an adequate auricular content.

As though this were not sufficient, the poisonous action of excess carbon dioxide strengthens the onslaught and still further vitiates the tissue anabolism.

Gradually yielding to decreased nourishment, the myocardium becomes, here and there, anemic, loses its elasticity and tonus, and a deposit of fibrin takes place. The density of such deposit determines the pressure upon the coronary vessels supplying that part, and if the pressure becomes sufficient the arterial wall becomes sclerotic and an atheroma exists the extent of which is only problematical.

If the deposit of fibrin, though great in extent, is on an area of unspecialized muscle, the noticeable effect may be slight; but if but a minimal extent of deposit be formed upon the highly specialized fibres, the circulation is markedly disturbed through arrythmic excitation.

While thrombosis of the pulmonary blood vessels is usually followed by their necrosis and obliteration, or by their rupture into a bronchus, with resultant hemorrhage, it occasionally happens that emboli split off to lodge either in a vessel elsewhere in the circulation or in one of the chambers of the heart, to attach themselves to the endocardial membrane or a valve leaflet, the beginning of a future stenosis. In either event a dangerous load is put upon the heart.

Considering the pathology and morphology in tuberculosis infection it is but natural that there should be a toxemia of varying degrees of intensity according to the type and advancement of the disease process. It may be safely asserted that no pyrexic nor fulminating type is without its mixed infection, and virulent strains of streptococci, staphylococci, B. influenzae and pneumococci are actively at work around all caseating foci. These microorganisms with minute toxic detritus find their way into the blood stream and eventually to the heart, where their inflammatory action attacks the endocardium with direful results.

Dana has said that inflammation, teleologically, is the reaction of the organism to an irritant; and whenever there is inflammation there is irritation. This microbic irritation of the productive type becomes, under a mixed infection, frequently the exudative or purulent type, and attacks with destructive force the very structure of the nerves on which the heart leans for functional support. The nervous system, however, is lord of the physical organism and will demand and receive, when all other structures are impoverished, its blood supply, and it is but rarely in tuberculosis that the heart denies its exactions while it continues to beat.

What then appears to be the disintegrating or disorganizing effect which can be taken as a direct causative factor in producing the symptom-

atology and morbid anatomy which we find in the cardiac mechanism of thousands of cases of pulmonary tuberculosis? I believe it is both physiological and neurological, and elements both psychic and somatic enter into its production.

We have been thinking of a variety of cardiac conditions all of which I have seen proven at the autopsy table. I have purposely not discussed extrapulmonary intrathoracic pathologies which are frequently responsible for cardiac dilitation and compensatory hypertrophy, such as extension of pleural inflammation to the pericardium; mechanical traction through negative pressure by a sound lung when its mate is diseased and compressed by intrapleural exudate or air, etc., although such complications exist in the course of pulmonary tuberculosis. Nor have I reviewed in detail the many endocardial conditions which are an inevitable concomitant of long continued myocardial abnormalities of pathologic etiology. The subject is of too great proportions to be practicable within the limits of this paper. We are dealing with uncomplicated pulmonary tuberculosis as an etiologic agent. Structural effects have been considered in both lungs and myocardium.

Bearing these in mind, we see the greatest strain placed upon the right ventricle. Deterioration of blood quality, and vitiation by exogenous toxins has impoverished the musculature through coronary undernourishment. Blood has been supplied to the cardiac plexus and its outbranching nerves, still further denying the muscular tissue. With failing muscular tonus, the myocardium endeavors to compensate by hypertrophy of dilating walls. Anemic areas degenerate to necrosis and undergo fibroid changes. With this fibroid degeneration of the myocardium has resulted a probable sclerosis of the coronary vessels. Infrequently with a much impoverished circulation deposits of interstitial fat are noted. Fibroid degeneration is, however, the rule. These areas of fibrosis, if located in specialized tissue within the conduction paths or papillary muscles, exert a constricting pressure upon the nerves of impulse excitation, reaching the auriculo-ventricular node, from which, as has been described, branches run to both ventricles. The rebound of excitation to the sino-auricular node completes the local neurological picture. The synchronous ventricular systole fails in complete sphygmic discharge, and frequently an extra systole intervenes. The cardiac action may become definitely arrythmic.

Frequently the myocardium is weakened, but the process of degeneration has not advanced to the fibroid stage. The clinical picture is the same. Varied manifestations indeed, but throughout there is one constant, namely, the auscultatory evidence of inertia and the palpable diminution of normal force at the radial pulse when the arms are lifted above the heart level.

The psychic element to which I have alluded as concerned in the production of this condition is, I believe, an involuntary subsidence of normal projection of hopeful purpose. You will say that this is a by-effect and not a contributing causal element; my observations have been to the contrary. May I leave the thought with you as a possible incentive to experimental psychotherapy?

A series of two hundred cases of pulmonary tuberculosis, chosen at random, without previous history of cardiac pathology, have yielded under my observation the following manifestations:

Group 1. Fifty cases of minimal lesion.

(a) Forty-six were with subnormal systole.

(b) Four were apparently as yet unimpaired.

Group 2. Seventy-five cases of moderately advanced pulmonary lesion.

(a) Seventy-five were with impaired myocardial tone.

(b) Fifty-three were with mitral insufficiency.

(c) Nine were with mitral stenosis.

(d) One was with aortic insufficiency.

Group 3. Seventy-five cases of advanced pulmonary lesions.

(a) Seventy-five were with poor to very poor myocardial tone.

(b) Forty-seven were with combined valvular lesions.

(c) Nineteen had a functional arrythmia.

(d) Six were not compensating.

In a series of twenty-five autopsies on tuberculosis subjects, the myocardium showed in seventeen a fibroid degeneration; in four, a pale softened tissue; in three, atrophic patches; and in one, a fatty degeneration.

The pathology which I have endeavored to describe is not a true myocarditis. It is primarily not an inflammation. It is a degeneration. It is, per se, not incurable. If the subject matter of this paper shall have awakened renewed interest, stimulated new thought, or added to the information of any, I shall feel that I have not abused the honor and privilege your association has accorded me.

SUMMARY

1. There is a definite cycle of interdependence, interrelation, association and contribution in the cardiovascular and respiratory systems.

2. Medical literature contains little on the heart as directly affected by pulmonary tuberculosis, and we must be unafraid in our modesty to advance opinions.

3. It should be the duty of every physician to keep freshly in mind the visualization of the mediastinal contents and their relative contiguity.

4. The neurological picture is too often overlooked by the clinician in general work. Montgomery states that the specialist in tuberculosis should be a professor of the skin and its contents.

5. The morphology of the lungs in tuberculosis presents a picture of progressively lessened aeration, destruction of elastic tissue, atheroma and obliteration of vascular walls, intoxication, thrombosis, toxemia and neural irritation.

6. Increasingly impoverished blood reduces the nutrition of the coronary system, and permits myocardial tissue to degenerate.

7. Degeneration is largely fibroid in type, but occasionally fatty.

8. Minute areas of fibrosis upon the highly specialized muscular tissue of the conduction paths may cause widespread damage and disfunction.

9. Microorganisms of complicating mixed infections, with toxic detritus from caseating foci, enter the heart through the blood stream and set up an endocardial inflammation by lodgement.

10. The causative factor in the symptomatology and morphology of the heart in tuberculosis is a complex of the physiological and neurological, containing elements of both the somatic and psychic.

11. The pathology of the heart in tuberculosis is, primarily, not an inflammation, but a degeneration. It is, per se, not incurable.

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REGIONAL AND LOCAL ANESTHESIA ROUTINELY APPLIED IN GENERAL SURGERY*

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The first consideration in any surgical operation is the patient's welfare. This includes the type of operation performed and the result obtained. The second consideration is the patient's comfort, the object being to accomplish the surgical procedure with as little discomfort to the patient as possible.

The selection of the method of producing anesthesia, or rather the selection of the anesthetic to fit the case and the patient, is a problem which has always given the profes-

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sion profound concern. The methods from which the surgeon must choose in the majority of operations are: (1) General anesthesia, by ether, chloroform, nitrous-oxide oxygen; (2) regional anesthesia, which includes spinal anesthesia; (3) local anesthesia by infiltration and infiltration block.

The danger of general anesthesia is well known, especially as regards ether and chloroform. The danger of anesthesia from nitrous oxide has been greatly reduced in the hands of skillful anesthetists in the last few years, but the temporary and permanent damage to nervous system, kidneys and heart from ether and chloroform, especially damage to the liver in chloroform anesthesia, are too well known to deserve more than mention in this paper. The danger of spinal anesthesia is growing less as the knowledge of its proper use is more widely disseminated, but its use today is far removed from an ideal anesthetic for the average general surgeon. As the great majority of operations are performed by the average surgeon, our chief concern is the selection of an anesthetic that can be used by the average surgeon, that will give the best results and conserve the welfare and comfort of the patient.

After long observation and the testing of various methods of producing anesthesia, I have come to the conclusion that the majority of my patients are safeguarded, and their welfare and comfort best provided for by the use of infiltration and infiltration block anesthesia.

The work of Braun, Pauchet, R. E. Farr and others is a fair indication of the future of this method of anesthesia. In the hands of the average surgeon, infiltration and infiltration block are preferable to nerve block, as the difficulty of spearing for nerves and making numerous punctures is hard on both surgeon and patient, since it only requires about three separate needle pricks to put the patient in an apprehensive state of mind. There are many difficulties yet to be overcome before this method of anesthesia comes into universal use, as it unquestionably will. Among these difficulties, the apprehension of the patient is foremost; second, comes the lack of skill on the part of the operator; third, the acquirement of a surgical technic that is sufficiently steady, even and delicate as not to pull, drag and maul the patient about after the operation is started; and, fourth, more careful study of cases and better preoperative diagnosis.

The first of these difficulties, the apprehension of the patient, is enhanced by the stories of horrible experiences gone through by other patients, regardless of what method of anesthesia was used; so that all patients who are going to submit to a surgical operation of any character suffer more or less from apprehension.

If an operation under local anesthesia is contemplated, the preparation begins immediately the surgeon has decided the operation is necessary and the patient has consented to have it performed. The simple explanation of the numerous advantages of local over general and the assurance of post-operative comfort is in a vast majority of cases sufficient. It has been my experience that most patients will leave the selection of the anesthetic to the surgeon, and that nine out of ten of them are glad to avoid ether, with its accompanying discomfort, and will readily consent to have the operation performed without a general anesthetic. The next step in the preparation of the patient is to see that the attendants, nurses and assistants, with whom the patient comes in contact, are helpful in every manner, and that the patient is reassured in all instances, so that by the time he reaches the operating room his confidence and morale have been considerably increased. It is a good plan to have the patient get acquainted with the psycho-anesthetist. The presence of the anesthetist and his assurance of the patient is of vast import in all operations performed under local anesthesia.

In regard to the preoperative medication and preparation; this does not differ materially from the preparation in general anesthesia, except that the patient is allowed the food prior to operation that is of so much value to him the two or three days following the operation. He is not exhausted by purgatives, and he is not disturbed on the night prior to the operation any more than is absolutely necessary. I have usually given ¼ grain morphine and 1/150 atrophine just before the patient is sent to the operating room. This is now being dispensed with. I have not found that narco-local has any advantages over straight local. Morphine is responsible for most postoperative nausea and vomiting. There are cases in which narco-local should be used.

It is my custom to operate in the middle of the morning, so that the patient is allowed to sleep as long as possible, and is not awakened by the nurse or attendant to be given a bath, or for other hospital care. Four ounces of petrolatum liquidum is given the night before and, if possible, bicarbonate of soda for two days prior to operation, at least 160 grains a day and 120 grains at 9:00 p. m. the night before operation. If there is no contraindication, the patient is given an enema before being taken to the operating room. If para-spinal or caudal anesthesia is to be given, the patient is taken to the anesthetizing room, placed in the proper position and the injections along the nerve trunks then made. This is now done by making an initial wheal as recommended by Farr. This permits it to be done with one prick of the needle. Twenty minutes are allowed to secure the desired effect. In the meantime, the patient has gone through the first stage of the "operation" without pain. The psycho-anesthetist has had time to get a good firm hold on the patient's interest. The patient is then removed to the operating room, placed in the position for operation and a second injection along the line of incision made. This second injection is quite useful, as occasionally the injection of a nerve trunk is incomplete, and a small filament of sensory fibers maintain their conductive power, and a painful sensation along some small part of the incision is noticed.

For the following operations it has been my custom to dispense with para-spinal anesthesia and not to resort to nerve blocking until after the abdomen is opened: Appendectomies, cholecystectomies, gastro - enterostomies, and exploratory laparotomies. The splanchnic nerves can be blocked by direct infiltration, by slipping the hand up beneath the dome of the diaphragm and with a long needle inject on each side of the vertebral column and along the celiac axis. For a cholecystectomy, infiltration along the common bile duct has usually proved sufficient in the most difficult cases yet encountered. In appendectomies, retrocecal infiltration, if the adhesions are marked, and infiltration subperitoneally through the mesoappendix with a fine needle is sufficient.

If pelvic work should be encountered, the careful making of a wheal, using from thirty to fifty cubic centimeters along the posterior brim of the pelvis and in front of the great vessels. Then if work is to be done upon the tubes, uterus, or ovaries, anesthetization of the round ligaments is made at once and the anesthetic is spread down the broad ligaments until the nerves are blocked. The operation can then proceed in the usual manner and in accord with the operator's choice.

One of the chief causes of failure in abdominal work, especially, is the quick, jerky movements of the operator or his assistant; rattling of instruments; dropping of something on the floor that makes a noise and causes the patient to become tense. This should be strictly avoided. If complete relaxation of the abdominal wall is not obtained before opening the peritoneum, the patient should be given a general anesthetic. The "silent abdomen" is as necessary as it is advantageous. A careful, steady and sure touch, with the operator working constantly, is a great help and is very

reassuring to the patient. After the abdominal wall has been thoroughly infiltrated or the nerves thereto have been blocked, the incision is made by gently passing a very sharp knife along the skin to mark the line of incision. Farr recommends elevating the skin and cutting between towel pins. I have used this method and in some cases believe it to be advantageous. I rarely ever cut completely through the skin the first incision. The incision is then carried down to the fascia by making light, delicate strokes. The bleeding is controlled as the operation proceeds by carefully picking up the arteries and avoiding the snapping of instruments as much as possible. The deep fascia is very sensitive, and this should be tested at several points along the line of incision before the incision is made to be certain that the anesthetic has gotten beneath it and has thoroughly anesthetized the muscular tissue below it. This testing should never be done by sticking a sharp instrument into it and asking the patient if it hurts. They will always tell you that it does. Use your finger and they will tell you the same thing. Prick the fascia; if the patient flinches or the abdominal wall contracts, your infiltration technic has been faulty. The peritoneum is opened in the usual way and the abdominal wall is lifted upward by hooking the finger underneath. Avoid retractors as much as possible. If retractors are necessary, the spring retractor of Farr is the one that should be used. By making long incisions and using the assistant's fingers as much as possible, the use of retractors can usually be avoided. Farr condemns this as a bad practice on account of asepsis and unsteady pull, dropping, etc. My experience in the laboratory and in the study of wound infection causes me to consider this as a very ultra refinement, so far as infection is concerned, and one that takes a secondary place if it interferes with the steady progress of the operation.

The claim that local, regional and nerve block anesthesia can be used as a routine in general surgery is well demonstrated by the following operations:

ABDOMINAL OPERATIONS

Herniotomies: There have been thirty-six cases, including double direct and indirect, ventral of the congenital and postoperative types; six included appendectomy; four were ventral, two of them being complicated by intestinal adhesions and one by fecal fistula. Out of the thirty-six cases, one required nitrous-oxide and oxygen to complete the operation. This case was very complicated and adhesions gave promise of hemorrhage from deep vessels. The patient objected to the gas because he "saw no sense to it."

Appendectomies: Out of forty-eight cases, fourteen of which included pelvic work, only three required mixed anesthesia. The general anesthetic was given in two instances where the operation could have been completed without it. Difficulties that might require general anesthesia should, whenever possible, be anticipated and the patient be spared any horrifying experience.

Cholecystotomy: Removal of gall-stones and drainage of gall-bladder, even with complete exploration, is very easily and satisfactorily done. It becomes almost a minor operation. A stone in the common duct, however, requires splanchnic block and very careful handling.

Cholecystectomy: Simple cholecystectomy presents no problems worthy of mention. Adhesions are easily handled by sharp dissection. Pulling on the gall-bladder must be avoided until the deep injection along the common duct is made.

Cholecystectomy and Appendectomy: Three cases of this type of combined operation were easily and quickly performed. Retroperitoneal injection and removal of the gall-bladder first was used in two cases. The third case did not receive any retroperitoneal injection, as the gall-bladder was large and easily accessible. Ten cubic centimeters of one-

half per cent novocain along the common bile duct was sufficient. In this case the appendix was adherent to the gall-bladder and the peritoneal adhesions appeared formidable. Sharp dissection and careful handling accompanied by surgical diplomacy completed the case without incident.

Gastro-Enterostomy: Two cases required ablation of the pylorus; two required appendectomy; one was a simple case. Once the surgeon has grasped the technic of operating in the upper abdomen under local anesthesia, this will be, in most cases, the method of choice. Three of these cases had had appendectomies performed under general anesthesia; all are now enthusiastic for local. The smooth and uneventful postoperative course makes a profound impression on the patient and attendants.

Entero-Enterostomy: One case without unusual features.

Ileus: Case with obstruction at the cecum. A firm band of adhesions was separated and the abdomen closed. Care was used in this case to prevent evisceration. This did not occur and the patient began passing gas before leaving the operating room. Uneventful recovery.

Laparotomy and drainage of large abscess in the lesser peritoneal cavity. One was tuberculous and anesthesia was ideal. One other had eroded the gall-bladder and when a large quantity of bile-stained fluid and pus was encountered, gas-oxygen was administered.

Gastric Carcinoma: Two cases were thoroughlly explored, found to have liver metastases and pronounced inoperable.

Gastrotomy: One case of the Weser operation was done with the ease of a minor operation.

GYNECOLOGIC

Hysterectomy: Three cases, in only one of which was gas-oxygen required to deliver the uterus, which was firmly adherent to the posterior pelvic wall. This might have been avoided if sacral anesthesia had been used.

Cesarian Section: The low incision preferred by DeLee was used in this case, as the operation of choice. (Note: Since this paper was read, five other cases have been operated under local anesthesia, one of them being a twin pregnancy.) All of these were eclampsia cases, and in all of them mothers and children have lived. There is no longer any necessity for adding the danger of ether to the toxemia of eclampsia in Cesarian section.

Perineorrhaphy and Trachelorrhaphy: No trouble is ever encountered from failure of the anesthetic if it is properly administered. Sacral anesthesia was used in five cases where abdominal work was to be done. Out of thirty cases, three required reinforcement of the anesthetic by second injection. These cases were due to faulty technic in the early part of this work.

Salpingectomy and Appendectomy: Trans-sacral nerve block was used in five out of ten cases. Three cases complained when traction was made on the uterus, but did not strain and contract the abdominal muscles sufficiently to interfere with the operation. One required gas-oxygen to dissect loose the appendix. The visceral peritoneum in this case was sensitive and the patient could detect the difference between the gloved finger and tissue forceps. When sharp dissection was attempted, the patient objected. This was the only case of this type encountered.

Tubal Pregnancy: One case in which the abdomen was opened and explored. The right tube contained the mass and was deep in the pelvis. On account of adhesions to the parietal peritoneum, a general anesthetic was given to complete the operation.

Large Ovarian Cyst: This single case is of more than ordinary interest. Five weeks before, she was operated by an out of town doctor in a large city. A vaginal hysterectomy was performed under general anesthesia, requiring over two hours and, according to the operator, proving quite dif-

ficult on account of hemorrhage. She was sent back to her home as soon as she could travel. The patient was in very bad condition when seen by me several weeks later. Examination disclosed a large mass in the pelvis with pus discharging from the vaginal vault. The opening was very small and there appeared a small thread or string in this opening. The opening was carefully enlarged to admit a hemostat and the thread was grasped with a dressing forceps and pulled out about three-fourths of an inch. A large amount of pus was evacuated. No hemorrhage occurred, and further traction was made on the protruding substance and a full-sized surgical sponge removed. The patient immediately began to improve. Two weeks later a large, thick-walled cyst, evidently an old one, was removed. Trans-sacral and paraspinal block was used here. Adhesions were very extensive and thick. The cyst was elevated after extensive dissection and 1500 c. c. of colloid material removed. This patient complained of disagreeable sensations when traction was made on the cyst wall, but said she suffered no pain throughout the operation. This proved to be one of the most formidable operations encountered. The heart and kidney condition absolutely precluded the use of ether and it is doubtful whether gas-oxygen would have saved this life by permitting the operation. It is cases like these that require local anesthesia or no operation can be done, and if this patient had come to operation before the use and value of local anesthesia was appreciated, undoubtedly the patient would have been lost. She made an uneventful recovery except for the heart condition, which has been damaged beyond recovery, the long ether anesthetic of the first operation probably being a contributory factor.

GENITO-URINARY

Nephrotomy: Nerve block from the eighth thoracic to the third lumbar. This is a formidable operation under local anesthesia. In this case, however, the anesthesia was perfect and the operation was completed without complaint. The lower angle of the wound was not well anesthetized and the patient flinched, but did not complain. This point was reinjected and the operation continued without interruption.

External Urethrotomy: Presents no difficulties to this method of anesthesia, and it is unquestionably the method of choice.

Cryptorchid and Herniotomy: Trans-sacral and lumbar block, with retroperitoneal infiltration below Poupart's ligament, gave complete anesthesia.

Hydrocele: Bottle operation of Andrews.

Cystotomy: Presents no features of special interest so far as anesthesia is concerned.

Removal of testicle, Vas and Seminal Vesicle: Trans-sacral and local infiltration was used and a satisfactory anesthetic obtained. Complaint was made when the peritoneum was pushed back. This area was injected and the operation proceeded without further complaint.

TRUNK AND CHEST

Liver Abscess: Rib resection and drainage, without complaint or special features.

Hemorrhoidectomy: The trans-sacral or sacral anesthesia have been found most satisfactory.

Pararectal Abscess: All of these patients complained when the abscess cavity was packed. In the future, caudal anesthesia will be used in such cases.

Fistula in Ano: Caudal anesthesia was used in these cases and satisfactory anesthesia obtained.

Inguinal Abscess: This apparently simple case elicited more complaint than any other. This was an early case and infiltration anesthesia was used when nerve block should have been used. The injection was the chief cause of complaint. The operator and not the method was at fault.

Axillary Dissection: This is a more difficult field than it appears. All of these cases were men, and brachial

plexus block and intercostal block were used. It is most advantageous. Time is no consideration and a careful dissection can be made.

Thoracoplasty and Rib Resections: Out of ten cases, one patient complained. This was a case where the pericardium was entered and drained after extensive rib resection, breaking down of adhesions and entering the pericardium from behind. The patient said he felt a sharp pain and described it as a "stitch" in his side. This lasted only a few seconds.

Lung Abscess: One of the most satisfactory operations that can be done under local anesthesia.

Excision of a tuberculous mass involving the eighth, ninth and tenth ribs. Intercostal block from the fifth to the twelfth thoracic proved sufficient.

HEAD AND NECK

Thyroidectomies: There have been eleven of these cases and none of them required a general anesthesia. None complained during the operation. Three were told several days after the operation just what had been done; these three were toxic and bad risks, but none of them presented operative difficulties. One case, an adherent and malignant thyroid, proved formidable. Five cases were done with the ease and facility of a minor operation. Two cases were substernal, but not difficult. The postoperative course in all of the series was far superior in all phases to similar cases operated under general anesthesia. This experience has led me to banish general anesthesia from all thyroid operations done by me.

Resection of lower lip, part of mandible and block dissection of glands of the neck. This was a formidable operation and required one hour and ten minutes.

Superior Maxilla: Removal of necrotic bone from floor of antrum in one case; electro-coagulation of carcinoma of antrum and alveolus in another case preliminary to insertion of radium. Nerve block and infiltration furnished ideal anesthesia in both cases.

Face: Excision of masses, removal of pieces of shrapnel and plastic work, were among the operations done. General anesthesia should never be required for any work on the face.

EXTREMITIES, BONES AND JOINTS

Varicose Veins: Extensive dissection presents no difficulties. Venous anesthesia might facilitate this operation, though I have not used it.

Arthroplasty: Ankylosis of the elbow is one of the easiest and most successful operations of this type. Brachial plexus block, with reinforcement by infiltration at the elbow, gave an ideal anesthetic. One case required gas to complete; the patient said he felt no pain, but could not stand the hammer and chisel.

Amputation of toes and fingers is a simple minor operation and the anesthesia is ideal.

Hallux Valgus: Three cases of this type were performed, one of which complained; this occurred when a nurse raised the patient's foot and dropped it suddenly.

Ununited Fracture: This case involved both bones of the forearm and brachial plexus block was used. The operation was extensive. This patient had been operated upon before under general anesthesia and he has decided that all future operations on himself, family and friends, if he has a voice in the matter, will be done under local anesthesia.

Arthrotomy: One case which involved the wrist. Dissection of tendons and annular ligament.

Osteomyelitis: There have been two cases thus far. They were approached with some hesitancy. Neither proved difficult. One was in the tibia and the other in the femur. One was a sixteen-year-old girl and was carried through without complaint. A similar operation was attempted on a sixteen-year-old boy. The patient stood the dissection without complaint, but when the bone was attacked, he complained. A hemo-

stat was then introduced and several points grasped without objection. The finger was then introduced and the leg rotated; the patient started a continuous shout and kept it up regardless of what was done. Gas was administered very lightly and the operation completed. The boy admitted that he felt no pain, but was expecting it and wanted to do all he could to help out.

Reduction of Fractures: Usually ideal anesthesia and perfect relaxation can be obtained by nerve block. This has become a routine procedure in reduction of fractures in the extremities, whenever the patient is old enough to give intelligent co-operation. One case of fractured elbow in a nine-year-old boy elicited complaint when the brachial plexus was blocked; the anesthesia was ideal; two similar cases have been so treated since this paper was read; one was uneventful and in the other the patient was a small boy who became frightened and gas anesthesia had to be administered. Fractures of the leg and Pott's fractures are easily handled under nerve block anesthesia, two of these having been treated since this paper was read.

The operations listed above are among the common cases that the average surgeon is called upon to handle, and experience with these justifies the following conclusions:

1. Local anesthesia should be used in all cases where it is possible.
2. The operating surgeon of today should make every effort to attain the highest proficiency as quickly as possible, and not wait until such time as necessity demands local in some desperate case.
3. Infiltration and infiltration block is easily performed and presents few obstacles to be overcome, that cannot be met by the average operator.
4. The postoperative course is always easier and the total pain suffered is less. Gas pains, etc., are less.
5. Convalescence is much more rapid.
6. The welfare and comfort of the patient are best conserved by this method of anesthesia.
7. Careful handling, elimination of unnecessary trauma, and sparing the central nervous system unnecessary burdens will go far towards eliminating shock.

DISCUSSION

DR. B. F. STEVENS: I agree thoroughly with this paper. We are neglecting our opportunity in not using local anesthesia more frequently, especially in tuberculous cases. If we did nothing more than reduce the morbidity following ether pneumonia in one per cent of cases, it is worth using. In appendectomy, herniotomy and gall-bladder operations it is certainly indicated. After you have once gotten the thing in hand, it is just as easy as operating under general.

DR. KENNEDY: We are all using local anesthesia in emergency cases, when we feel that we have to. If we use it in these cases successfully, where conditions are not favorable, why do we not use it more generally in cases where we have the privilege of choice?

DR. WATKINS: I do not, of course, come in contact with a great deal of surgery, but what I have seen of local anesthesia, especially by nerve blocking, has appealed to me. One case, in which electro-coagulation had to be used preliminary to insertion of radium into an antrum for carcinoma involving the alveolus and floor of antrum, was very beautifully anesthetized by nerve blocking and local infiltration. Have had occasion to observe the effects of several cases where the nerve blocking was done for reduction of fractures on the fluoroscopic table, and must confess that the work under this anesthesia, as compared with ether, is very pleasing to the radiologist. It is confusing and dangerous to the patient to administer general anesthetics in the dark—and it is during the fluoroscopy, while reduction is being attempted, that the greatest relaxation is required and hence the deepest anesthesia. The application of nerve block anesthesia seems to me much preferable.

DR. SWEEK (closing): Do not agree that it is just as easy to work under local anesthesia; the surgeon must know his anatomy more thoroughly. The control of the patient is the difficult feature, and this depends on the manner in which you handle your hands and voice and the control you have over the personnel of the operating room. The exploration of the abdomen should, by all means, be done under local anesthesia, because you can apply physiological tests by grasping the part and reproducing the symptoms complained of; for example, upper abdominal symptoms from appendicitis. Why we do not use local anesthesia more generally is a very pertinent question. If we wait until the deseprate case comes along in which local anesthesia is demanded, we will not be fitted to handle it, when it comes.

FURTHER EXPERIENCES WITH PEPTIC ULCERS ACCOMPANIED BY DEFORMITIES OF THE VISCUS VISIBLE BY X-RAYS*

By MAX EINHORN, M. D., New York

Last year I published a paper[1] reporting cases of peptic ulcers with deformities of the viscus evidenced by x-rays, treated from April 1, 1921, to April 1, 1922. It was shown that these far advanced cases of peptic ulcer with niche formation along the lesser curvature and deformity of the cap are amenable to medical treatment. The same view is held by Hamburger[2] and Diamond[3], as cited in my article. H. Ohnell has likewise written extensively on this subject. At the time I published my paper I was not aware of his work, and I wish here to compliment his meritorious pioneer work in this line. Ohnell[4] reported six cases of gastric ulcers with niches which he cured by medical treatment. In order to be successful, he considers abstinence from food by mouth for a number of days, followed by a light diet (Leube) as essential. In a later paper[5], the same eminent clinician published his experiences with thirty-six cases of ulcers with niches. In 92 per cent of these, perfect cures—that is, disappearance of the niches—were accomplished.

Notwithstanding the papers just mentioned and a few others expressing the same opinion, the question of the curability of peptic ulcers with niches is still doubted by a great many clinicians and by almost all surgeons. For this reason it does not appear inappropriate to publish so soon my further experiences with these cases. Before discussing the new material, however, I should like to review the condition of the patients described in my last year's paper. I regret that I cannot give an account of all of them, but shall state the progress of as many as I am aware of.

Of the six cases of ulcer with niche formations I know the condition of five. In case I (L. K., as described in my paper) the patient has gained about thirty pounds, eats everything, has no symptoms whatever, and attends to his business. In case II (Andrew R.), the patient, who had the largest niche and was almost beyond help, feels perfectly well, and up to January 5, 1923, had gained over thirty pounds in weight and eats everything. In case III (Harry A.), is also in good condition and has gained in weight. The patient in case IV (Solomon D.) was well up to November, 1922, when he began to be troubled with upper abdominal pains, especially in the right hypochondrium. He was sent to the hospital for investigation. All the examinations, including x-ray pictures, showed that there was no ulcer present—especially was there no reappearance of any defect or bulging out of the mucosa at the place where the niche had existed. It was found, however, that he had some gallbladder lesion to which his recent complaint was due. In case VI (John E. McC.) the patient improved considerably and gained in weight, but was advised by me to be operated upon on account of duodenal adhesions and gallbladder trouble. This was done and the patient is now perfectly well.

Of the cases with duodenal ulcers described, four patients are in good condition, while I have not been able to follow the others.

In the present paper I wish to describe briefly the new cases of ulcers with deformities of the stomach or duodenum which I have observed in the year from April, 1922, to April, 1923. Five of these cases were affected with gastric ulcers and eight had ulcers of the duodenum. Some of these had partial obstruction of the pylorus also (Schneck and Henry M.). Two of the cases with niche formations I shall briefly describe, while the others will be grouped in table form.

(*Read before te New Mexico State Medical Society on June 20, 1923, Albuquerque, New Mexico.)

Case I.—Jacob W., a widower, forty-four years of age, a laborer, born in Hungary. He was admitted to the hospital in January, 1923, with a diagnosis of penetrating ulcer of the stomach. His family history was negative. Five years previously he had a chancre and was treated for five weeks. Four years ago he had an attack of gastric trouble similar to that for which he was admitted, which lasted for seven weeks.

The onset of the last attack occurred in October, with sudden severe pain in the epigastrium. This pain persisted on and off to the time he was admitted to the hospital. The pain was located in the epigastrium, radiating to the chest, and came on one or two hours after meals. The ingestion of food slightly relieved the pain, which was worse at night. During the first three weeks of the attack the patient suffered from persistent vomiting after each meal. This subsided after dietetic treatment in a hospital.

The patient had suffered from diarrhea for the week previous to admission, having five to six movements daily, and had lost forty pounds in weight in two months.

The physical examination showed the skin to be dry and scaly; the pupils unequal; the teeth infected—pyorrhea; the lungs dull all over; the heart slightly dilated to the right; and tenderness in the epigastrium. Temperature 102° F. on admission, but subsided in three days and was normal ever since. The Wassermann test was negative, as was also the string test. The gastric contents showed: Hydrochloric acid+50; acidity=60. Blood examination negative. The x-ray pictures showed a big niche in the lesser curvature.

The patient was put on duodenal feeding for twenty-one days, at the end of which time he had no pain and had gained nineteen pounds in weight. He was discharged February 24, 1923.

During the duodenal feeding period, at the end of two weeks, the first control x-ray picture of the stomach was taken. At the end of three weeks the tube was removed and another x-ray picture of ehe stomach was taken, after which the patient was allowed a more liberal diet. An x-ray picture was then taken every week, the gradual diminution of the niche being distinctly seen. On March 16, 1923, the patient reported that he had gained twenty-nine pounds since the treatment.

Case II.—Karl B., fifty years old, was admitted to the hospital December 23, 1923, with a history of epigastric pain and vomiting for five years.

The patient began to complain five years ago of pain in the umbilical region, coming on three to four hours after eating, and was accompanied occasionally by vomiting. He had had ten severe attacks of this pain and vomiting within the past five years. Three weeks before admission the pain shifted to the epigastrium, and he suffered from severe vomiting from three to four hours after meals. He had always been constipated, and had lost fifteen pounds in the last five years. There was no blood in the stools, and no blood in the vomitus. The physical examination showed the stomach dilated, extending to the symphysis (splashing sound). The gastrict contents showed: Hydrochloric acid+acidity=50. There was no blood noted. The string test showed no blood stain; but there was bile present on it from twenty-four inches to the end. The x-ray picture showed a niche on the lesser curvature, and six hour gastric retention.

This case is of interest in showing that the niche entirely disappeared in the short period of two weeks, under treatment by duodenal alimentation. In a letter from the patient under date of March 20, 1923, he states that he is feeling perfectly well, is eating a liberal diet, and is attending to his work as a chauffeur.

The rest of the cases are presented in the accompanying table.

Inasmuch as the reproduction of the x-ray photographs is not always satisfactory when published, I prefer

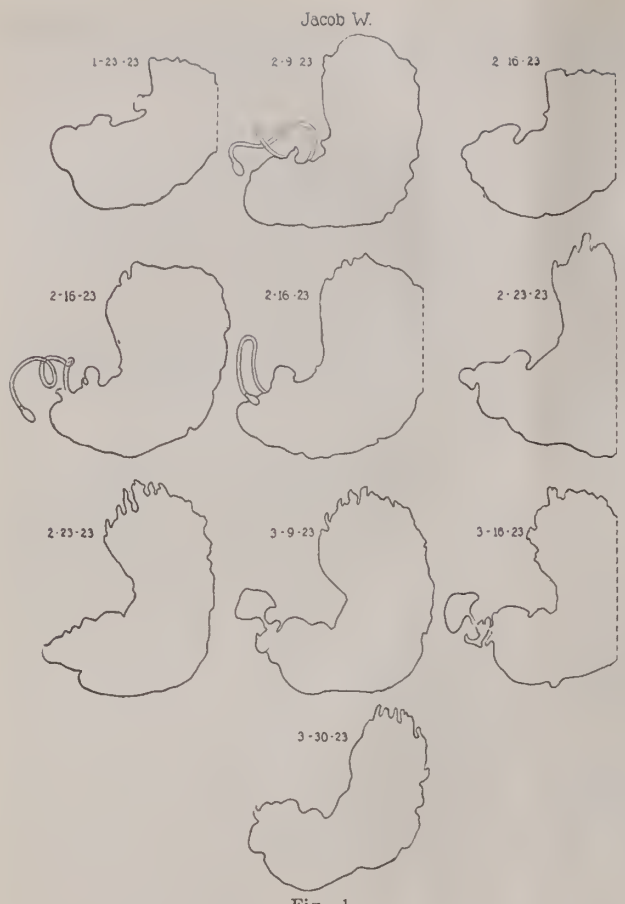


Fig. 1

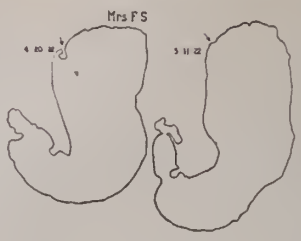


Fig. 5.



Fig 6.



Fig. 7.

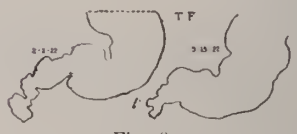


Fig. 8.

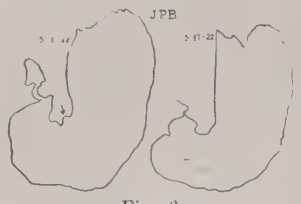


Fig. 2.

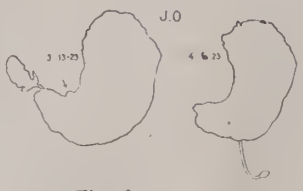


Fig. 3.



Fig. 4

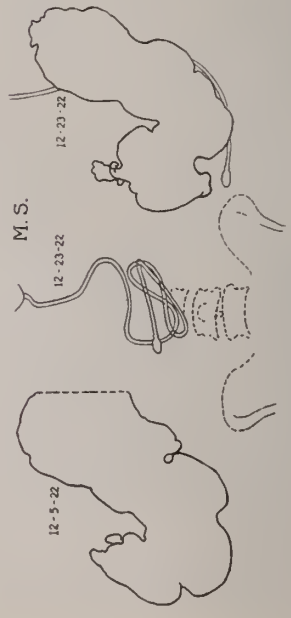


Fig. 9



Fig. 10



Fig. 12

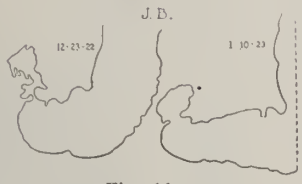


Fig. 11



Fig. 13



Fig. 14

Fig. 1.—Case I. Jacob W. (a) before treatment, January 23, 1923. Erect· niche of considerable size visible on lesser curvature. (b) Two weeks after treatment, February 9, 1923. Prone: niche has diminished to about one-third its original size. (c) Three weeks after beginning of treatment, February 16, 1923. Erect: niche has diminished to about one-sixth its original size. (d) February 16, 1923. Same: oblique, niche more distinct. (e) February 16, 1923. Same: prone. (f) One week after removal of tube or four weeks after beginning treatment, February 23, 1923. Oblique: niche has diminished to about one-tenth its original size. (g) February 23, 1923. Same: prone, niche hardly noticeable. (h) March 9, 1923. Six weeks after beginning treatment. Oblique: hardly a trace of niche visible. (i) March 16, 1923. Ohlique: hardly anything noticeable. (j) March 30, 1923. Nine weeks after beginning treatment. Oblique: perfectly normal; not a trace of niche noticeable.

Fig. 2.—J. P. B. (Case I, tahle). (a) May 1, 1922, before treatment. Niche on lesser curvature visible. (b) May 17, 1922, aftre treatment. Niche has disappeared.

Fig. 3.—J. H. O. (Case II, table). (a) March 13, 1923, before treatment. Oblique: Niche of considerable size on lesser curvature. (b) April 6, 1923, after treatment. Oblique: Niche has entirely disappeared.

Fig. 4.—Karl B. (Case II, text). (a) November 27, 1922, before treatment. Medium size niche visible on lesser curvature. (b) December 15, 1922, after treatment. Tubes visible in duodenum. Niche has almost disappeared. (c) December 15, 1922. Same, erect; not a trace of niche noticeable.

Fig. 5.—Mrs. F. S. (Case III, table. (a) April 20, 1923, before treatment. Defect in cardiac portion of stomach visible. (b) May 11, 1923, after treatment. Defect has disappeared.

Fig. 6.—Solomon D. December 1, 1922. Re-examination of patient—reported in last year's paper and mentioned in text of present article—shows no return of the niche.

Fig. 7.—Frank D. (Case IV, table). (a) May 1, 1922, before treatment. Considerable defect in pyloric portion. (b) May 16, 1922, after treatment. Defect has almost disappeared.

Fig. 8. Timothy F. (Case V, table. (a) February 2, 1922, before treatment. Deformed, lengthened and rigid pylorus. (b) May 15, 1922, after treatment. The deformity is less marked.

Fig. 9.—Morris S. (Case VI, table). (a) December 5, 1922, before treatment. Marked deformity of cap. (b) December 23, 1922. Stomach empty (without borium); duodenal tube in the small intestine. (c) December 23, 1922, after treatment. Same, after borium injection; deformity of cap less marked; tube visible in small intestine.

Fig. 10.—Siegmund K. (Case VII, table. (a) December 1, 1922, before treatment. Marked deformity of cap, with contraction of lumen. (b) December 19, 1922, after treatment. Cap less deformed, almost normal; capsule end of tube visible in beginning of jepunum.

Fig. 11.—Jacob B. (Case VIII, table). (a) December 23, 1922, before treatment. Persistent defect in the first portion of the duodenum. (b) January 10, 1923, after treatment. Defect has disappeared; cap almost normal.

Fig. 12.—Fred M. (Case IX, table). (a) October 13, 1922, before treatment. Marked irregularities in the prepyloric region, and deformity of cap. (b) November 3, 1922, after treatment. The irregularities have disappeared and the deformity of cap has become less marked. (c) January 17, 1923. The pyloric portion has has assumed a more normal appearance.

Fig. 13.—Miss Ida W. (Case X, table). (a) December 11, 1922, before treatment. Sacculation in second portion of the duodenum, and defect in prepyloric portion. (b) December 29, 1922, after treatment. Defect and sacculation have entirely disappeared.

Fig. 14.—Henry M. (Case XI, table). (a) December 29, 1922. To the right of the stomach two beads are visible, indicating that the digestive test capsule or beads have passed through the narrowed pylorus. (b) January 22, 1923. The capsule end of the duodenal tube is visible in the duodenum. (c) January 22, 1923. The bead attachment of the duodenal tube is seen in the heginning portion of the jejunum.

TABLE OF THE REMAINING CASES OF PEPTIC ULCER WITH DEFORMITIES OF THE VISCUS VISIBLE BY X-RAYS TREATED FROM APRIL 1, 1922, TO APRIL 1, 1923.

No. Name	Symptoms	Physical Signs	String Test	Gastric Contents	X-Ray	Results
1. J. P. B...	Pains immediately after meals, duration 20 years. Occasionally vomits but no blood. Had an attack of hematemesis 21 years ago. Has lost 20 pounds past 4 months.	Tenderness on pressure, stomach considerably dilated.	Positive; blood stain, 53-55 c.m.	HCl., pos. Ac., 80.	Penetrating ulcer of lesser curvature, 6 hour gastric residue.	Niche disappeared, patient feels very well.
2. J. H. O...	Past 2 years, nausea and vomiting; epigastric pains late after meals; food relieves pain.	Pains on pressure in left epigastrium, radiating to the back.	Positive; blood stain, 61-62 c.m.	HCl., pos. Ac., 50 Blood, pos.	Penetrating ulcer of lesser curvature.	Niche has entirely disappeared; patient feels well.
3. F. S.	Pain and burning in epigastrium for 15 years.	Tenderness on pressure right beneath the ensiform process.	Positive; blood stain, 35-50 c.m.	HCl., pos. Ac., 90.	Irregular defect on the lesser curvature, high up at the cardia; slight gastric residue after 6 hours.	Defect disappeared; patient feels better.
4. F. D.... ..	Lues 20 years ago; past 7 years pains after meals; melena and hematemesis; Wassermann 4 plus.	Tenderness on pressure under right costal margin.	Positive; blood stain, 43-56.	HCl., pos. Ac., 80.	Defect on the greater curvature of the stomach in the prepyloric area; the cap is deformed; slight 6-hour gastric retention.	Defect has decreased; patient eats and feels well.
5. T. F.. ..	Discomfort in epigastrium for 6 years, no relation to food; hematemesis and melena once. Wassermann neg.	Pains on pressure beneath the ensiform cartilage.	Positive; blood stain, 55-57 c.m.	HCl., pos. Ac., 112.	Duodenal ulcer with deformity of pylorus.	The deformity is less marked; patient feels well.
6. M. P.....	Past 12 years has had pain on and off in right hypochondriac region 2-3 hours after meals pain was relieved by eating; Wassermann neg.	Liver enlarged. Pains on pressure in right hypochondrium, stomach dilated and extending a hand's width below the navel.	Positive; blood stain, 50 c.m.	HCl., pos. Ac., 40. Blood, neg. (Feces neg. for blood.)	Deformity of cap in all films; slight 6-hour gastric retention.	Deformity lessened; patient feels well.
7. S. K.....	Vomiting on and off past 2 years; headaches one year; pain in right hypochondrium 3 weeks. Wassermann neg.	Tenderness on pressure in right hypochondrium.	Positive; double blood stain, at 56½ c.m.	HCl., neg. Ac., 10. Lact. Ac., neg. Blood, neg.	Cap contracted; considerable 6-hour gastric retention.	Deformity of cap less marked; patient feels better.
8. J. B.....	Duration 9 years with periods on and off lasting several weeks of epigastric distress one and one-half hours after meals; relieved by bicarbonate of soda. During the last 5 years there was also vomiting during the attacks.	Pain on pressure in the middle of the epigastrium.		HCl., 82. Ac., 98. Blood, neg.	Persistent defect in the first portion of the duodenum.	Deformity and defect of cap have disappeared; patient feels better; has gained 30 pounds in weight; eats a liberal diet.
9. F. W. W.	Duration 8 years; heartburn 3-4 hour after meals, coming on in periods lasting several weeks, with few intermissions.	Tenderness in the entire epigastrium; stomach dilated, extending 3 fingers' width below the navel.	Positive; blood stain, 42-52 c.m.	HCl., pos. Ac., 70. Blood, neg.	Marked irregularities in the prepyloric region, suggesting ulceration with spasm.	Deformity of cap less marked; patient eats and feels well.
10. Miss I. W.	Duration 13 months; epigastric distress, belching of gas, nausea right after eating.	Pain on pressure under right costal margin.	Positive; blood stain, 41-43 c.m.	HCl., pos. Ac., 72. Blood, neg.	Peculiar sacculation in ascending portion of the duodenum just beyond its junction with the bulbus. Such finding usually indicates a diverticulum; slight 6-hour gastric retention and considerable retention in the diverticulum. (Dr. W. H. Stewart.)	Diverticulum has disappeared; patient feels well.
11. H. M.	Duration 10 years, epigastric distress on and off during this period. Diabetes mellitus for a number of years.	Tenderness on pressure in right hypochondrium, stomach dilated, extending to the symphysis.	Positive; blood stain, 48-52.	HCl., pos. Trace Digestive test capsule appears after 50 hours; remaining some thymus (no nuclei).	Distinct pressure defect on the duodenum, suggesting some involvement of the gall-bladder.	Cap fills out better.

to give sketches made by an artist from the photographs taken in all these cases. They were all taken at the Lenox Hill Hospital, and I herewith express my thanks to Dr. W. H. Stewart, the head of the department for roentgenology. The result of treatment, which was always duodenal alimentation, was very gratifying. In one of the patients (Henry M.) the pylorus was partially stenosed and the tube did not pass the outlet during a period of five days. I was inclined to have the patient undergo an operation (gastroenterostomy), but on account of his age (sixty-seven years) and his condition (he was suffering from diabetes mellitus), and also because he was strongly opposed to operation, I decided to make further efforts at medical treatment.

I attached a bead with a string to the capsule of the duodenal tube and had the patient swallow this contrivance. The bead being much smaller than the capsule, passed through the narrowed pylorus in twenty-four hours, and in another twenty-four hours pulled the capsule into the duodenum, and made the duodenal alimentation feasible.

While at first I thought that the disappearance of the niche was a mere possibility, I am now of the opinion that this is rather the rule, provided efficient treatment is instituted. It is, therefore, evident that these old peptic ulcers with deformities do not as such form an indication for surgery, for they can be healed. It is understood, of course, that there may at times be urgent reasons for intervention and that surgery may have to be resorted to, but in my opinion most cases can be healed by proper treatment.

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PROGRESS IN THE TREATMENT OF DIABETES*

Report of Cases

By DR. F. D. GARRETT, El Paso, Texas.

Since the modern treatment of diabetes mellitus is so intimately connected with certain basic facts having to do with the present conception of the physiology and pathology of the pancreas, and with our knowledge of post-absorption metabolism, it seems fitting to review briefly some of the most salient and important advances in these fields.

Cauley, in the latter part of the eighteenth century, discovered the connection between diabetes and disease of the pancreas. In 1893, Von Mering and Minkowski, by the removal of the pancreas of dogs, found that diabetes could be produced at will by removing the whole or a part of the gland. In 1900 Opi discovered that the seat of the pathological change in the pancreas causing diabetes in man is that part known as the islands of Langerhans. About the same time, Stangl and Wichselbaum described a hydropic degeneration and vascuolization of the small island cells in diabetic glands. This made it possible for the pathologist to diagnose diabetes from the study of the gland tissue alone.

Later Allen[1] continued the study of the pancreas in depancreatized dogs and drew the following conclusions:

"That hydropic degeneration of the islands of Langerhans is a specific diabetic phenomenon produced solely

(*Read before the El Paso County Medical Society, at El Paso, at regular meeting of October 1, 1923.)

by overstrain of the function of the cells by diets in excess of the weakened assimilative power."

This observation gives us the reason for the downward tendency in the progress of a patient who has diabetes who will not or cannot be kept sugar free.

Allen also concluded from his experiments, "that the hydropic change in the cells is probably reversible within certain limits; and even widely vacuolated cells may recover their former size and granulation provided the cell membrane has not burst or the nucleus become too badly degenerated." Allen further observed that "the profound cachexia following total pancreatectomy is not due solely to the failure in the carbohydrate metabolism or the hyperglycemia or glycosuria resulting from this failure"; also "that the alpha, duct, acinar, or other cells in the pancreas furnish an unknown internal secretion which is somehow important for the welfare of the organism."

Banting and Best,[2 3] working under McLeod, in the laboratory of the University of Toronto, knowing that the acini but not the islands of Langerhans, degenerate after ligation of the ducts of the pancreas, hoped by the ligation of the duct, to avoid pepsinogen or its derivatives and to secure a pure and potent extract. This procedure was carried out on a series of dogs, and at the end of ten weeks the pancreas was removed. It now showed an abundance of healthy islets and a complete replacement of the acini with fibrous tissue. An extract was obtained from the pancreas prepared in this manner and it was found that the extract invariably exercised a reducing influence upon the percentage of sugar in the blood and the amount of sugar excreted in the urine, and that the extent and duration of the reduction varied directly with the amount of extract injected.

In November, 1921, the same observers[4] made the highly important discovery that the pancreas of the fetal calf under five months in development possessed the desired internal secretion, but did not contain this undesirable digestive pancreatic juice. It is not necessary to follow the steps in the preparation and final standardization of the finished product, Insulin, which is already a part of our armentarium.

Too much credit cannot be given to Banting and his colaborers for their achievement. At the same time, we should not forget those who labored long, and often without credit, to obtain the basic facts on which they built. The giving of this product to the world without financial reward is further evidence of that altruism in medicine which always has, and we hope always will, grace our profession.

Due largely to the work of Allen and Joslin, the great importance of blood sugar estimations in the diagnosis and treatment of diabetes has come to be appreciated. Usually when the blood sugar rises above 0.16 or 0.17 per cent, the so called glucose threshold, sugar appears in the urine. Joslin states that threshold values above 0.18 per cent have not yet been found for normal persons, but lower levels are frequently obtained in cases with renal glycosuria.

Woodyatt[5] recently made important observations which have led to the rather general adoption of a formula for estimating the total available carbohydrate value in the diet, viz., that the total glucose value of a diet is equal to all the carbohydrate plus 58 per cent of protein plus 10 per cent of the fat.

It was established by Benedict, Joslin and DuBois that patients with severe diabetes have a distinctly higher metabolism than normal persons in a similar state of nutrition, or than the same patients when their diabetes is controlled by treatment.

Quoting from Lusk[6], "When the patient was intensely diabetic the number of calories produced per hour as measured by the calorimeter was 73.2. The weight of the patient was 56.5 k. The heat production was normal for that weight. Later, thru starvation, the weight fell from 56.5

to 46 k. and the patient developed a high degree of carbohydrate tolerance. The calories produced per hour fell from 76.4 to 43, or was 35 per cent under the normal for the body weight. Thus he requires only about 60 per cent of the food that he had required previously when he was heavier and diabetic. Accordingly, so long as he is diabetic, the patient is forced to overtax his enfeebled metabolic function with a load far beyond his actual need. Efficient treatment allows a fall to the low metabolic level proper to him as an undernourished individual. When the changes achieved within a few days are of the order illustrated in the above it is no wonder that the beneficial effects of correct diabetic treatment upon the diabetic is often strikingly evident.

Joslin[7] states that a diagnosis of renal glycosuria is always dangerous and leads to carelessness on the part of the doctor and the patient. True diabetes often follows upon the seemingly mild condition called renal glycosuria. However, a few cases of what seems to be true renal glycosuria have been reported.

Billings, of Chicago, reports the case of a boy of 12 who had a large percentage of sugar in the urine which persisted during a period of 27 years. At the end of this time the blood sugar was normal under all conditions and the patient appeared to be in good health. The presence of sugar in the urine with lower blood sugar than that at which glycosuria usually occurs, or with a subnormal level is considered to be proof of a renal glycosuria.

Damage to the pancreas by infection is thought to be the principal cause of diabetes mellitus. Allen thinks that chronic pancreatitis from infection with organisms of low virulence accounts for the great majority of cases.

Biliary infection, with or without stones, is believed to be an important source of infection. It is also probable that infected teeth, tonsils, and gastro-intestinal tract may be a source of the damaging bacteria or toxin.

The treatment consists in the old and tried principle of rest to the diseased tissue. The rest is secured by getting the tolerance of the patient to glucose, that is, the point at which the patient gets free from sugar. After starting him at zero fat and zero (or very little) carbohydrate and protein, the diet is gradually increased. Since the advent of insulin, in some severe cases it does not seem necessary nor advisable to starve the patient or to start him on a very low diet, but to begin at once giving insulin, and increasing the doses until the urine is sugar free, and the blood is at a normal level. It seems to me that Allen's plan of gradually withdrawing successively, fat, carbohydrate and protein, and then giving only broth and coffee for a day, followed by a return to a small amount of carbohydrate, then protein, then fat, and gradually increasing them, still offers the best and most satisfactory way of getting the patient sugar free, and determining at the same time his carbohydrate tolerance.

I wish to report two cases of diabetes mellitus, each of which is a representative of a large group of diabetic patients. The prognosis in both cases would have been exceedingly grave fifteen years ago.

CASE I.

Mrs. H.; white, American; housewife. Referred by Dr. J. M. Richmond.

Family History: Father died at age of 25 of tuberculosis. Mother died at age of 43 of chronic kidney disease the history of which would suggest renal tuberculosis. Patient had no brothers or sisters.

Past History: Patient lost her only child, a boy of 16, five years ago, following which she had a complete nervous breakdown and has not been well since. One year ago had rheumatism affecting the right knee. At about the same time noticed a very dry skin and pruritis with itching. Patient has had hay fever every summer for the past 14 years. Two years ago had a breast removed on account of small malignant tumor. There has been no recurrence. There is no history of past infection.

Physical Examination: Patient is 5 feet 5½ inches in height. Weight 155. Maximum weight 168. Nose, throat, tonsils nega-

tive for infection. No infected gums. No crowned or abscessed teeth. Tongue coated. Pulse 90, soft, slightly irregular. Blood pressure 144-84. Cardiac sounds normal, no murmurs. Lungs normal. Menstruation regular and not painful, but preceded and accompanied by marked increase of nervousness. Pupils react normally to light and accommodation. Romberg negative. Deep reflexes normal. No tremors. Patient rather inclined to stoutness. Muscles very flabby. There was no enlargement of the thyroid or other signs of hyperthyroidism. No vascular signs of disturbance of the adrenals. No evidence of disease of the pituitary. Urine showed 2.5 per cent sugar (fermentation). Blood contained 0.28 per cent sugar. Diacetic acid strongly positive.

Patient was put to bed and given fat free, low carbohydrate and protein diet, so that on the third day all food had been withdrawn except clear broths and coffee. Increases were then made, beginning with a carbohydrate, then protein, and later fat was added, so that at the end of five or six days she was getting about 35 grams of carbohydrate, 36 grams of protein, and 80 grams of fat.

At this point, according to Woodyatt, she was getting 72 grams of glucose, and had a positive test in the urine. Up to this point the diacetic acid was constantly present in the urine. We began giving patient 10 minims of H-5 iletin three times a day. We increased the carbohydrate to about 70 grams. The patient immediately felt better, but there was a slight sugar reaction in urine. The examination of the blood in the early morning, at this time, showed 0.15 per cent sugar. The iletin was increased to 12 minims three times a day and she became sugar free. Without increasing the amount of iletin gradual additions were made to the diet until at the end of six weeks she was getting about 100 grams carbohydrate, 80 to 90 grams protein, and 150 grams fat.

Blood sugars have been taken occasionally and have never run above 0.12 per cent. The lowest was 0.08 per cent.

Patient has been able gradually to omit the iletin and now, after five months, is taking only 4 minims, night and morning, once a week. She has been taught to test her urine and reports that she has had no sugar for some time.

CASE II.

Mr. K.; age 51; white, American. Occupation, merchant. Patient states that he is an office man and for many years has worked under considerable strain. Height 5 feet 11 inches. Weight 154 pounds.

Chief Complaint: There is general weakness, and for the past two months pain in the head and discharge of pus from the left ear. Diagnosis of diabetes mellitus and mastoiditis has been made by Drs. Richmond and Schuster. The radiographs showed that there was marked evidence of disease of the mastoid. Patient complains of sleeping very poorly on account of pain.

Physical Findings: Skin pale, glossy, smooth and dry. Temp. 99 to 101. Pulse 90 to 110. A few infected gums, but no crowns or abscessed teeth apparent. All teeth need attention. Radials somewhat thickened and tense. Blood pressure 134-90. Heart regular in action. Area of cardiac dullness normal. Sounds and rhythm normal. No signs of disease in the lungs, but the respiration was very superficial. No tenderness nor muscular rigidity nor painful areas in the abdomen. No dullness. Spleen and kidneys not palpable. No hernia. No enlarged glands. Genito-urinary organs normal. Pupillary reflexes normal to light and accommodation. Romberg negative. Deep reflexes sluggish. Patient looked like he had lost considerable weight. Muscles flabby. There was no evidence of thyroid or pituitary disturbance. Thirst not increased. No recent skin infections. No history of prior infection except for rheumatism in the knees. Patient had no digestive disturbance except slight constipation. Has been on restricted diet for some years.

Examination of the urine showed a small amount of sugar with a marked positive diacetic acid. On account of this condition we decided that it was best to begin giving him iletin after a very brief and partial fast. We began with 4 minims of iletin three times a day and increased this gradually until he took as much as 12 minims three times a day. During a period while the iletin was being increased the blood sugar was estimated at intervals and ranged from 0.18 in the beginning of the treatment to about 0.10. On one occasion the blood sugar reached 0.05 per cent. There was never any toxic effect from the iletin manifested at any time except a rather marked puffiness of the face, which seems to be a rather common occurrence when iletin is given.

Dr. Schuster, who treated the ear, did not think that the mastoid would clear up without operation; but under treatment the suppuration gradually decreased and the pain and edema over the mastoid disappeared. He was kept under observation here for about two months and returned home.

We had found that he could take care of around 100 grams carbohydrate, with 90 to 100 grams protein, and 150 grams fat. He has remained about 10 pounds under weight, but reports that he feels fine and at the present time is taking about the same diet as when he left. The iletin has been reduced to about 10 minims twice a day. He occasionally finds a trace of sugar in the urine, and that usually on days when his work is unusually heavy.

I must acknowledge, with thanks, the cooperation of Drs. Richmond and Schuster in these cases. The outlook for both cases seems very good. They have learned the principles of diet as applied to their cases. They know

how to test their urine for sugar and diacetic acid. They have been taught that it is better to be thin and well than fat and sick. We have tried to teach them the "why" for what they do.

In a sense there is no cure for diabetes, in so far as there is no replacing of tissue cells once destroyed. But the combined experience as applied to the treatment of diabetes makes it certain that a cure in every practical sense can be obtained in all but the most severe cases by the means at hand.

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THE PROGRESS OF SURGERY SINCE ANTIQUITY

WILLIAM R. LOVELACE, M. D., Albuquerque, N. M.

The earliest records which have been handed down to us in the realm of surgery come from Egypt and have been verified by the payrus Ebers, written 1552 B. C. This is a compilation of directions and recipes for the treatment of numerous diseases, many of which are referred to as being already ancient at that time. Later human skulls were found, in which holes had been drilled and parts been removed by means of stone tools, supposedly for the relief of headache, epilepsy and similar ailments, indicating that surgery dates back to the stone age. The age of these relics is only approximately known, assuming that palaeontology has traced the beginning of human existence to a period between 50,000 to 100,000 years ago, in the post-glacial age, according to the science of evolution.

More recent knowledge of practical medicine and surgery extends to the time of the pyramid builders in the valley of the Nile. There we find it recorded by sculpture as a series of operations carved in stone in a tomb in the necropolis at Memphis, which was built by King Menes I, the founder of the first Egyptian dynasty. These surgical sculptures are of a date about 4,500 years ago. They were discovered by Max Muller on a mission for the Carnegie Institute.

ALLUSIONS IN OLD TESTAMENT

In the Old Testament are found a few allusions to medicine—used in the larger sense and embracing surgery as well—indicating that most diseases are punishments inflicted by the divine power and must be removed by sacrifice and special ceremonies. It naturally follows that priests were the chief "medicine-men", although there seem to be a few exceptions to this rule. Further, still, in connection with religious lore, reference to surgery is found in the Talmud.

Surgery was done prior to the year 200 A. D. by Jewish rabbis. They understood the application of artificial parts—teeth, wooden legs and other substitutes for the lower extremities — were acquainted with sutures for wounds and various other helpful operations, and venesection, leeching and cupping were commonly practiced. Surprising as it may seem, anesthetic substances to diminish pain were used, although in a very crude way, by these people.

PROMINENCE IN HYGIENE

While the Hebrews attained the greatest prominence in hygiene

among the Orientals, the credit of having excelled all other nations of their time in operative surgery belongs to the Hindus. To go away back, however, to the earliest Sanskrit documents (1500 B. C.), treatment then consisted of spells and incantations against the demons of disease of their human agents, the witches and wizards. In the Brahminical period (800 B. C.-1000 A. D.) medicine was entirely in the hands of priests and scholars, and Cingalese records indicate the existence of hospitals in Ceylon in 437 and 137 B. C. In the Susruta, a Brahminian publication of the fifth century A. D., about one hundred and twenty different surgical instruments are described. Limbs were amputated, hemorrhages checked by cauterization, fractures and dislocations treated by a special splint made of bamboo, a method later adopted in the British army. It is a remarkable fact that at this early date these surgeons were employing skin grafting, plastic surgery and the like, and it is interesting to note that their method of extracting cataract is still in use at the present time. The Hindus were pioneers in experimental surgery, using plants, gourds, cucumbers, as well as dead animals; particularly with the object in view of insuring rapidity and thoroughness of technic in the absence of an anesthetic.

POEMS OF HOMER

From the poems of Homer have come our first allusions to surgery in Greece, dating from about 1000 B. C. Among the Greeks, at this time, were numerous surgeons whose knowledge and skill were greatly esteemed, as elucidates from the fact that monuments and portrait statues were erected to preserve their memory. In addition, many of the warriors, and even some of the Grecian women, were apt at dressing and bandaging wounds. Over forty wounds in different parts of the body are described in detail, the nomenclature being identical with that used later by Hippocrates—who was born about 460 B. C.—and to whom we are next indebted for our knowledge of medicine among the Greeks. Most of the physicians (who were also surgeons) during the time of Hippocrates were priests, although a number of them were admitted to the guild on the claim that they were descendants of Hippocrates.

Among the contemporaneous investigators, Schilemann is prominent as the excavator of Troy. He found in the old city of Mycennae a sculpture of very hard stone representing a set of coils of intestines which shows very well the difference between normal intestine and that inflated by gases. This dates from not later than 600 B. C.

CAPTURE OF ALEXANDRIA

After the capture of Alexandria by the Mohammedans (about 640 A. D.), the Arabians became the inheritors and preservers of the science of the Greeks, and it is to Abulcasem (died 1106) and Avenzoar (died 1162) that we owe chiefly our knowledge of the surgery of these people. Also of Rhazes and Avicenna are arabic medical writings preserved of the period of 850 to 1037. While the arts and sciences progressed in the countries under Mohammedan rule, and especially in Spain, medicine in the rest of Europe was practically in a condition in which it exists in barbarous tribes. With the rise of the monkish orders, the priests became practitioners, and prayers and relics were relied upon. Hebrew physicians were called upon by the kings and nobles, and during the tenth and eleventh centuries they were considered by both Catholics and Mohammedans as the only doctors who possessed scientific knowledge. Surgery was practiced principally by barbers and men of inferior caste, each a specialist in his own particular sphere, the knowledge being handed down from father to son, as in the case of the Greeks, previously referred to.

Until the thirteenth century with the rise of universities in Italy there were practically no European writers or teachers of surgery, with the pos-

sible exception of the medical schooi of Salerno in the ninth century. To this school came Constantine Africanus, a learned Carthagenian, who translated all the Arabian, Indian, Egyptian and Greek medical writings, which subsequently became the textbooks of all Europe, these treasures being far in advance of the existing knowledge of physicians of the time.

In the fourteenth century, however, it was superseded by schools in Naples, Bologna, Paris and Montpelier.

FRENCH SURGICAL AUTHOR

Guy (also known as Guido de Cauliaco) was the great French surgical author of the fourteenth century, and his teachings were the chief authority for over two hundred years, although he contributed little that was new. At this time, the practice of surgery and of medicine in western Europe were held as distinct branches. Those who practiced medicine considered themselves on a higher plane and spurned the shedding of blood, which was left to the barbers to do. But the barbers actually were men who had acquired some experience in the monasteries, where the monks were bled as well as shaved. (Some monks, especially the brethren of the order of St. Benedict, also practiced surgery in the monasteries.) During this time there was constant friction, for the medical men, feeling that the surgeons were encroaching upon their domain, encouraged the barbers by teaching them anatomy, with the result that later—in the early years of the sixteenth century—the Guild of Barber Surgeons came into being. About 1540, the barbers and surgeons in England were united and incorporated by act of parliament as the Company of the Barber Surgeons. This, however, did not end the constant difficulties which periodically arose between the medical men, master surgeons and barbers.

SURGEONS FORMED A GUILD

In Germany the surgeons formed a guild on the principles of the artisans' guilds. They acquired their practical knowledge from a master surgeon and completed it later partly from books, partly from study in scientific institutions. There were two groups of surgeons; one was established in towns as practitioners of general surgery, and the other, known as "cutters" (herniotomists), "incisors" (lithotomists) and "oculists," traveled throughout western Europe and performed all kinds of emergency surgery. The license to practice for the established practitioners, physicians, as well as surgeons, depended on certain conditions defined by a law which the Emperor Frederick II issued and enacted in 1224. According to this law, the medical men in order to be admitted to a final examination, had to study "logic"—philosophy and philology—for three years, medicine and surgery for five years and had to practice under the supervision of an older physician for some time as degrees "Magister" received the degrees "Magistar" and "Doctor."

In France, about the same time, the medical faculty of the University of Paris (established in 1205) began to regulate the licensing of the medical and surgical practice by issuing degrees. The exclusive surgeons united in a corporation called the College de St. Come, aspiring at the same time to the degrees of bachelor and "license" (to lecture). The members of the barbers' guild, permitted by law to practice minor surgery, in competition with the members of St. Come, wanted the entire surgery. The medical faculty for some time favored the barbers because they did not want the surgeons of St. Come to become too arrogant. Thus, not only in France, but in every civilized country, the wrangling factions keep up the strife in competition for honors and for material reward to this present day.

ADVANCES IN PHYSICS

In Holland, previous to the seventeenth century, surgery had made little progress, but about the middle of that century students from all Europe were attracted to the schools of Amsterdam and Leyden, where the surgeons were doing much original

work. Experimental work was then first resorted to on bodies of criminals and on persons dying from unusual diseases, as well as on dogs. This work was made possible through the advances in physics and all the science under the influence of the "Renaissance" (invention of the printer's art, 1456), and it became a source of important discoveries in anatomy and physiology.

The sixteenth and seventeenth centuries are marked in England by the names of William Harvey (1578-1658), the discoverer of the blood circulation, and Aselli (1581-1626), the discoverer of the lymph-vessel, and in France of Ambroise Pare (1517-1590), originally a barber, who made the best of his opportunities as a field surgeon and as a consultant being called to distant places. What Pare did as a practical, original surgeon, his contemporary, the skillful Italian anatomist, Vesalius (1513-1564), did for enhancing the knowledge of anatomy, that mainstay of surgery without which conscientious work is impossible. The impulse which these men gave to the progress of surgery is effective and can be felt to this day. The greatest genius of the Englishmen of the eighteenth century was John Hunter (1728-1793), who accomplished as much as an anatomist as by his scientific and practical work as a surgeon. His book on inflammation and wounds is still considered authoritative at present.

ATTEMPTS AT REGULATION OF FEES

In the beginning of the eighteenth century, in our own country, it is interesting to note the methodical attempts at regulation of fees in Virginia, in 1736, surgeons and apothecaries being allowed to charge only one-half as much as a general physician. It is likely that this was the outcome of a tendency of "fee-splitting" between physicians and surgeons.

In 1760, in New York, the first regulation was instituted by law which forbid anyone to practice as a physician or surgeon who had not been approved and examined by special, approved judges. Other states followed suit in rapid succession.

While in the beginning of the nineteenth century French surgery remained predominating, as the names of Dupuytren (1777-1835) and Jean Dominique Larrey (1832-1843), the steady companion of Napoleon I, show, the dividing lines between the nationalities in the middle of this century begin to disappear in the domain of surgery as in all other respects. The means of communication increase with the increasing facilities of travel, and interchange of opinion in congress of medical men and distribution of knowledge through all the world by printed periodicals unites the surgeons everywhere by one common interest.

GREATER DEMANDS MADE

As the population in cities increased, greater demands were made upon surgeons, and greater opportunities were offered in all countries. Medical schools flourished, hospital facilities were increased, trained nursing established as an independent profession, and greater facilities for the manufacture of surgical instruments and apparatus were at hand.

However, what opened to surgery the unprecedented possibilities of its modern perfection were the two events which revolutionized practical surgery completely.

The first is the discovery of anesthetics and their practical use for the prevention of pain in the performance of surgical operations. In 1780 Sir Humphrey Davy had suggested that nitrous oxide gas might probably be used with advantage in surgical operations, but not until 1846, when Dr. Henry J. Bigelow read his paper on "Insensibility During Surgical Operations Produced by Inhalation" before the American Academy of Arts and Sciences, was the first definite account of the method of satisfactory anesthesia in surgical operations made known, and in the following year it was generally used throughout the civilized world. The Dentist Morton of Boston was the first one to ex-

tract painlessly, at the suggestion of his friend, Dr. Jackson, under inhalation of sulphuric ether. In 1849 Simpson, professor of obstetrics in Edinburgh, introduced chloroform into the practice of surgery.

SCIENCE OF BACTERIOLOGY

The other important factor bearing on the development of modern surgery is the advent of the science of bacteriology to which Pasteur's patient studies and meteoric discoveries gave the impulse. The investigators whose names are familiar to everybody, Pasteur, Lister and Koch, have an equal claim to recognition as founders of the new science of bacteriology. It is due to Lister's genius, however, that it made him see the practical possibilities of the visions of Pasteur. Recognizing the destructive qualities of the bacteria as the cause of the delay of wound healing, Lister invented his antiseptic methods, first using carbolic acid as the germ-killing agent. After years of experimenting in his war on putrefaction, he succeeded independently in conquering the most obstinate foe of clean surgery. In 1867, this great English surgeon established his methods in the hospitals of London, the plan being to prevent putrefaction by excluding the entrance of micro-organisms to wounds or by destroying their power, with the least possible injury to the living tissues, if they gained admission.

Marked progress in abdominal and intracranial surgery was the immediate result of anesthesia and antisepsis, because with the two main obstacles to surgery now removed, there seemed to be no more carriers to any operations. Dental surgery became oral surgery and all the sinuses of the head were made accessible to formidable operations. Lives were saved or considerably prolonged by the possibility of extensive tumor operations and cancer became curable under the condition that it is recognized early enough. Improved laboratory methods and the greatly perfected microscope made early diagnosis possible.

DISCOVERY OF X-RAY

In the recognition of many surgical diseases, the discovery of the x-ray by the German physicist Roentgen (1896) has become an indispensable aid. Fascinated as by a miracle, the first observer saw the rhythmic motions of the human heart inside the chest and the bones beneath the muscles. What a relief for the patient with broken bones to be saved the pain of examination by manipulation, how much more exact the treatment of fractures and its results. Again, electric illumination and much improved instruments, going as far as revealing the function of the kidneys through the cystoscope, having cleared the field for the genito-urinary surgeon, made every opening of the human anatomy accessible to the skilled operator. Mechanical technic has harnessed electricity in the service of the surgeon by construction of apparatus for treatment of all the special diseases, and in the carbon arc lamp and the mercury vapor lamp has created devices for heliotherapy which in efficiency rival the sunlight.

In diseases too extensive for surgical attack, light therapy sometimes in competition with roentgen-ray treatment, obtains very favorable results. Regarding the usefulness of the roentgen-rays in their application on malignant tumors the last word has not been spoken, especially not since radium was introduced in 1906 into the practice of surgery. Radium is a rare metal, discovered in 1899 by Madam Curie and her husband. As it is unstable in air, the chloride and bromide salts of radium are used. They emit, besides heat and light, three distinct kinds of radiation. The application of radium concealed in specially constructed tiny containers has frequently produced very remarkable results in cases which were beyond surgical relief, and its power of checking hemorrhage in diseases peculiar to women is all but marvelous.

LOCAL ANESTHETICS

To chemistry also the modern sur-

geon owes gratitude for the gift of local anesthetics, among which novocain is the chief exponent, its use compelling the surgeon to more gently handling the tissues under the knife and saving the patient the risk of shock under operation and the inconvenience and dangers from inhalation anesthesia after operation.

All the technical and scientific attainments of the last thirty years which have made for the progress of surgery have been put to the test by the recent world war. The lessons of previous wars were naturally profited by and applied. Prophylactic vaccination against typhoid fever reduced its incidence to a negligible number compared with former experiences, and preventive serotherapy and subsequent injections of antitetanus serum before attempting surgical interference saved many lives in the early months of the war, makinig the dread disease finally capitulate entirely. When the machine-gun fire threw bullets with mathematical precision in incredible numbers per minute, modern methods of treatment of the wounds inflicted had to be adapted with equal scientific accuracy. The Carrel-Dakin method accomplished this by thorough irrigation of the wound with measured quantities of Dakin's solution, touching every part of the wound and proportioned to needs according to what numbers of bacteria were found in accurate counts taken at stated intervals.

AWARD FOR CANCER RESEARCH

The award of the Sofie A. Nordhoff-Jung Cancer Prize, which has been made for the first time this year, has been presented to Dr. Johannes Febiger of the University of Copenhagen.

Dr. Johannes Fibiger, professor ordinarius in pathological anatomy at the University of Copenhagen, has demonstrated, following repeated experimentation, that parasites play an important role in the formation of certain types of tumors in the proventriculi of rats.

Furthermore, he has succeeded in effecting papillomata and undoubted carcinoma through the parasite nematode. Where others have failed after years of persistent researches, he first met with success in artificially inducing malignant tumors through external irritations and so thrown wide new avenues to future findings. Though the earlier results of Fibiger's work date back a number of years, he unremittingly labored towards an interpretation of the significance of parasitic irritants in malignant tumor formation, likewise of mechanical and chemical irritants. Fibiger and his associates have contributed generously to the literature of cancer production through feeding to rats of oats and the application of tar to their tissues. In this way they have confirmed the successful work of Stahr and Yamagiva.

In a word, Fibiger's advances towards the solution of the problem of the causative irritants productive of cancer are at the same time most comprehensive and most remarkable.

His name will ever appear inscribed on the first page of the History of Cancer Research.

The commission on the award consisted of Professors Borst, Doederlein, v Romberg and Sauerbruch, all of the University of Munich.

NATIONAL COMMITTEE ON MENTAL HYGIENE

Dr. Frankwood E. Williams was re-elected Medical Director of the National Committee for Mental Hygiene at the annual meeting of the Board of Directors, held in New York City, on December 28. The following were elected members of the Executive Committee: Dr. William L. Russell, Medical Director, Bloomingdale Hospital, White Plains, New York; Dr. Walter E. Fernald, Superintendent, Massachusetts School for the Feebleminded, Waverley; Dr. Stephen P. Duggan, Director, Institute of International Education, New York City; Dr. William A. White, Superintendent, St. Elizabeth Hospital, Washington, D. C.; Dr. Charles P. Emerson, Dean of the Medical School, University of Indiana, Indianapolis; Dr. C. Floyd Haviland, Chairman, State Hospital Commission, Albany, New York; Dr. Arthur H. Ruggles, Superintendent, Butler Hospital, Providence, Rhode Island, and Mr. Matthew C. Fleming, attorney, New York City. Dr. William H. Welch, President of the National Committee for Mental Hygiene, presided.

ANTITOXIN PROGRESS

Ever since Behring and Roux gave diphtheria antitoxin to a waiting world, the most progressive biological laboratories have been engaged in reducing to a minimum the inconveniences and uncertainties of antitoxin administration.

The doses given at first were too small, and yet quite large enough in volume. The manufacturers soon succeeded, however, in eliminating useless water from the serum and otherwise concentrating it. Meantime, more accurate methods of assaying it were developed, the U. S. Public Health Service co-operating.

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THE ARIZONA STATE MEDICAL ASSOCIATION

(D. F. Harbridge, Secretary)

In order that your county and state affairs may be properly conducted, it is important that each member make it a point to pay his dues promptly. The State Association dues of ten dollars, together with a complete list of all county members, should be in the office of the state secretary well in advance of March 31, 1924. All delinquents coming in after this date cause an endless amount of unnecessary correspondence in having their names added to the lists forwarded to the American Medical Association.

Dr. George Sampson of Winslow, secretary of the Navajo-Apache Counties Society, on January 18 brought in his full list of membership and dues. Dr. Sampson is one of our most active county secretaries in making prompt annual returns. This has been his custom during the past eight years.

WHAT TO EXPECT

In the editor's report to the Medical and Surgical Association of the Southwest, at El Paso, in December, attention was called to the imperative necessity of thorough organization of the medical forces of the southwest district with the object of cementing friendship with northern Mexico and fostering the commercial and professional relations between that country and the southwest, as distinguished from the Pacific Coast. Attention was called to the impending completion of the railroad connecting Guadalajara with Mexico City, giving direct train service from San Francisco to Mexico City, via Los Angeles, Yuma, Tucson, Nogales, Hermosillo, Guaymas and Guadalajara. For the medical profession of Arizona (especially) and the entire southwest to ignore the opportunities offered by the opening up of this vast empire to the south will be to hand over to southern California all of these opportunities. It was predicted in the report mentioned that Los Angeles was watching and waiting for this opportunity—and this prediction was justified by the New Year edition of the Los Angeles Times, which carried an article entitled, "Guadalajara—Los Angeles' Neighbor." This article very graciously grants to El Paso the districts about Chihuahua and Torreon, stating that "by reason of propinquity and railway connections, Los Angeles has the entire west coast."

The term "neighbor", when used by Los Angeles, never refers to propinquity, but is used to designate an opportunity to be exploited. In the same article Hawaii is spoken of as a "neighbor".

That Arizona is located between California and Mexico will be given as little consideration by the former as it was given in the establishment of the stage line between Los Angeles and El Paso. The fact that these stages had to use the highways of a sister state was not looked on as worthy of consideration, no attempt being made to secure Arizona licenses or permits.

The lesson is written plainly for us to read; if we do not read and act, we will deserve what we get.

TO THE MEMBERS OF THE NEW MEXICO MEDICAL SOCIETY:

At the meeting of the New Mexico Medical Society, held in Albuquerque, N. M., June 19-21, 1923, the following amendment to the Constitution was offered, to lay over to the next meeting, which is to be held in Santa Fe, N. M., on the 27th, 28th and 29th days of May, 1924:

"Resolved, That in the first paragraph of Article XI, of the Constitution, the words "$3.00 per capital per annum" be changed to read $5.00 per capita per annum."

The constitution provides that proposed amendments shall be published in the official journal for two issues preceding the annual meeting at which they are to be voted on.

C. M. YATER,
Secretary.

PHOENIX MEDICAL MEETINGS

With the inauguration of the monthly staff meetings of the Deaconess Hospital, Phoenix will have weekly medical gatherings. The County Society meets on the first and third Saturday evenings; the staff of St. Joseph's Hospital meets on the third Thursday evening; the staff of the Deaconess will meet on the fourth Saturday evening.

It is planned to make the county society gatherings chiefly for scientific papers, and presentation of clinical cases seen in private practice.

The staff meetings will be for the purpose of studying difficult or interesting cases treated in the hospitals—and will be entirely clinical.

Since practically every eligible practitioner of the community will be on the staff of both hospitals, the meetings will all be general so far as attendance is concerned, and visitors in Phoenix will be more than welcome at any of these meetings.

YAVAPAI COUNTY (Ariz.) MEDICAL SOCIETY

The Annual Meeting and Banquet of this Society was held on January 8, at the Yavapai Club. The following officers and committees were selected for the year:

President—Dr. R. H. Thigpen of Jerome.

Vice-President—Dr. John W. Flinn of Prescott.

Secretary-Treasurer — Dr. C. E. Yount of Prescott.

Delegates—Drs. H. T. Southworth (Prescott) and A. D. Wilson (Prescott); alternates, Drs. C. R. K. Swetnam (Prescott) and W. I. Linn (Prescott).

Censors—Drs. A. C. Carlson (Jerome), C. R. K. Swetnam (Prescott) and R. N. Looney (Prescott).

Committee on Public Health and Legislation—Drs. R. N. Looney (Prescott), John W. Flinn (Prescott), H. T. Southworth (Prescott) and J. M. Walsh (Jerome).

DR. LUTHER EMMETT HOLT

Dr. L. Emmett Holt, who died in Peking, China, on January 14, 1924, will perhaps be longest remembered as the author of a book, "The Care and Feeding of Children," which, through twelve editions, has been for twenty-five years an authority in the homes, not only of the United States, but of South America and Europe, and in China and Japan, where it has been invaluable in medical missionary work.

Dr. Holt was born on March 4, 1855, at Webster, N. Y., was graduated from the University of Rochester in 1875, took his master's degree three years later, and, in 1880, was graduated from the College of Physicians and Surgeons of Columbia University. Later, when his work had brought him fame, he received the honorary degrees of LL. D. from Rochester and Sc. D. from Columbia and Brown Universities.

At the time of his death he was physician-in-chief at the Babies' Hospital, member of the Board of Directors and Secretary for the Rockefeller Institute for Medical Research, and Trustee of the University of Rochester. He was a member of the Association of American Physicians, retiring president of the American Pediatric Society and a trustee of the New York Academy of Medicine.

Though nearly seventy years old, he went to China in August, 1923, as special lecturer at the Union Medical College in Peking, an institution maintained by the Rockefeller Foundation. His death is a loss, not only to the nation, but to the world, whose children he made it his mission to save and serve.

EL PASO COUNTY MEDICAL SOCIETY

A regular meeting of the El Paso County Medical Society was held January 7, 1924, at the University Club.

The meeting was called to order by Dr. C. M. Hendricks, Past President, at 8:16 p. m. There were present thirty members and one visitor.

Dr. Hendricks addressed the society on some interesting points that had happened during his administration and stated that one item he wished to dispense with was the fact that the Annual Banquet for 1923 had not been held. He asked the members to pass on this subject at this time. Dr. Rawlings made motion that the banquet be not held, which was seconded by Dr. Leff, and carried.

Dr. Hendricks expressed the hope that the weekly meetings and the Program Committee that were inaugurated during the latter part of his administration would be continued during the coming year. He advocated and strongly recommended the creation of a Publicity Committee, with function to write medical articles in lay language for publication in the daily papers and to co-operate along this line with the editors of the papers, as in this manner much could be done to offset the advertising by the irregular practitioners of various types.

The Secretary-Treasurer's report was then called for and made.

In reference to the financial report and the addition of the weekly meeting, Dr. Hendricks recommended a rearrangement of the funds of the society, to meet the extra expenses.

Dr. Willis W. Waite, President-elect, was then introduced, took the chair, and continued the meeting.

Dr. Waite announced that he had left his written speech at home, but gave an impromptu talk that was very interesting and forward looking. He expressed his appreciation to the members for his election to the presidency, an honor he had not hoped for. Among the points of interest emphasized was that the efficiency of a society increases directly in proportion to the interested activities of its members, and that "we should keep in front of us the following points: The one great fault is carelessness; carefulness is a matter of personal training. We should use the strong points of our associates; we should know our associates better and by knowing them be more willing to use their good points and have them use ours." He referred to the newly formed Pathological Club and their eagerness to work and learn and stated that the society had always available the material and results of their work. He asserted that there is abundant room for two or three more such Pathological or Medical Clubs, of one division or another, and a special opportunity for investigation along pharmacological lines. He emphasized the desirability and importance of making this a medical center—a center, for instance, of tuberculosis, to create the impression on people all over the country that El Paso was a center of study of such work. He referred to the work of standardizing hospitals on the strength of the fact that the standardization statistics show that standardization has reduced death rates and reduced the number of hospital days, all of which means better work, and strongly recommended that we work along the line to make all of our hospitals standardized, to have our city known as a city of 100 per cent standardization. He quoted statistics showing such description of the State of Nevada, although there are but four hospitals in the state, it is 100 per cent standardized.

The next on the program were the papers. Dr. E. B. Rogers read a

paper entitled "Syphilis of the Kidney." Discussion was opened by Major Scott and continued by Drs. Werley, Leigh, Waite and Barrett.

The second paper was presented by Major Fred S. Wright, entitled "Mammoth Hypernephroma." The pathological phase of the work was presented by Major F. E. Gessner. The paper was intensely interesting and there was given in addition to it a most complete history. A specimen was presented, the pathological areas carefully outlined and labeled. Sections were shown under three microscopes. Discussion was entered into by Dr. C. A. Sellaser, a visitor; Major Scott, Major Wright, and Dr. George Turner.

There were no case reports.

The President, Dr. Waite, offered for consideration that the society have a home of its own, three rooms in the First National Bank Building, next to the museum of the Pathological Club, which could be had for $70 per month, with no expense for the removal of partitions, etc., and such other details, for putting them in order for occupancy. The library could be taken to this location and the books placed on shelves surrounding the room.

Dr. Cathcart made motion that a committee be appointed to investigate as to the advisability of making this change, which was seconded by Dr. Werley, and carried.

Announcement of the next program was made by the President, and, as no other business came before the house, the meeting adjourned at 10:12 p. m.

F. O. BARRETT,
Secretary.

MARICOPA COUNTY (Ariz.) MEDICAL SOCIETY

The semi-monthly meeting of this society was held in the lecture room of the Sisters' Hospital on January 5, at 7:30 p. m. There were present Drs. Bailey, Carson, Couch, Gudgel, Holmes, Milloy, Schwartz, Watkins, Wheeler, Wylie, Mills, Smith, Vivian (president) and Phillips (secretary).

Upon motion that an auditing committee be appointed to audit the books for the past year, the chair appointed Dr. H. P. Mills as auditor.

The first paper of the evening was by Dr. Win Wylie, entitled "Discussion of Proposed Act Authorizing the Court to Appoint Medical Experts." At the annual meeting of the Arizona Medical Association in Prescott in 1922, a resolution was adopted directing that a bill be framed and presented to the next legislature providing for the appointment of medical experts by the court. Dr. Wylie's paper contended that such a law would be unfair and unconstitutional. The paper and discussion will be published in an early number of SOUTHWESTERN MEDICINE. It was discussed by Drs. Watkins, Gudgel, Smith, Carson, Holmes, Bailey, Phillips and Schwartz, the discussion being closed by Dr. Wylie.

The second paper of the evening was by Dr. W. A. Schwartz, on the subject of "Septic Thrombophlebitis of the Lateral Sinus Following Suppurative Otitis Media and Mastoiditis, With Report of Four Cases." This paper and discussion will appear in an early number of SOUTHWESTERN MEDICINE. It was discussed by Drs. Watkins, Wylie, Phillips, and closed by Dr. Schwartz.

The matter of the next meeting was introduced for discussion, and Dr. Carson stated that he had not received the desired response to his endeavors to arouse interest in the matter of fee schedules and Secretary Phillips stated that he had not received response to his invitations for speakers on the subject of ethics. Motion was made that we do not hold the meeting for the discussion of ethics and fees; after some discussion this motion was put to vote and lost. The secretary called for more volunteers to discuss various phases of medical ethics.

Motion was made that the next meeting be held at the Professional Women's Club rooms, with dinner at 6:30. This motion prevailed and society adjourned.



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Assistant Medical Director

T. C. CROWELL, M.D.
Pathologist



MARICOPA COUNTY (Ariz.) MEDICAL SOCIETY

(Dr. L. A. W. Burtch, Secretary Protem.)

The regular biweekly meeting of the Maricopa County Medical Society was held the evening of January 19, at the Business and Professional Women's Club rooms, where dinner was served before the regular session. Owing to the late arrival of the president, Dr. Stroud, vice-president, called the craft from labor to refreshment. Dr. Vivian arrived before the food had been consumed and took charge of the meeting, selecting Dr. Burtch to act as secretary protem. A good attendance was out, about forty appearing before the close of the meeting. Among those attending both dinner and meeting afterward were: Drs. Beauchamp, Charvoz, Waddell, Holmes, Tankersley, McCall, Reese, Duncan, Wheeler, Jordan, Shields, Bannister, Goodrich, Sweek, Shelly, Harbridge, McLoone, Phillips, Milloy, Wylie, Brown (O. H.), Neff, Bakes, Felch, Couch, Palmer (C. B.), Dameron, Ellis, Brockway, Stroud, Thomas, McIntyre, Smith (Willard), Carson, Mills, Vivian and Burtch.

The first paper on the program was by Dr. Stroud, and the president called on Dr. Wylie to open the discussion. He opined that the feeling of friendship among members of the profession had considerably improved since his first recollections of the relationship of physicians one to another, which was in the days of his father's practice in a small eastern town, and that his early experiences in Maricopa county had been somewhat along the same lines; at one time he was refused license to practice in this county upon his return from a long vacation in California. For the profession he has only kindly feelings and considers all the profession in the county, with one exception, as friends—and this exception he does not actively and openly condemn. Dr. Wylie is not engaged actively in practice of medicine, but as an illustration of his kindly feelings he is working to his utmost to free a fellow practitioner from an attempt to railroad him to the penitentiary on purely technical grounds.

Dr. Brockway commented on the most excellent paper of Dr. Stroud, which, to his mind, got to the kernel of the matter, and his only criticism would be to cut it somewhat shorter and make it more forcible. Cited the story of one minister's wife saving another minister might be all right if he would only "get religion"; applying it to the profession in that if we would all "get religion"—in other words, live up to the golden rule and forget the petty envies and greed there would be little cause for a code of ethics.

Dr. Reese quoted a notice posted in the office of a friend of his in the east, "The other physicians in this town are my friends; you can't pay your bills in this office by belittling them."

Dr. Woodall says that a physician should be a salesman in that he sells himself; should "know his stuff" and sell on his own merits, not on what the other fellow isn't. Told of recent occurrence of discussion before patient which does not raise any of the profession in the estimation of the public.

Dr. Mary Neff quoted from Osler and was grateful that there had never been for her any harsh criticism from the profession in Maricopa county and agreed that it is extremely poor business to belittle any member of the profession to the laity, as it only serves to lower the dignity of the whole profession.

Dr. Willard Smith, being called on by the president, said:

> "So many Gods; so many creeds,
> So many roads that wind and wind,
> When just the art of being kind
> Is all this old world needs."

Dr. Stroud in closing said that he had been treated very kindly by most of the profession, particularly so by Dr. Wylie, and that he had gone out of his way to treat all in an ethical manner and he was proud of the record made by Dr. Wylie in making it exceedingly unprofitable for the laity to bring malpractice suits in this state. Was well pleased with Dr. Woodall's friendly manner of criticism and with Dr. Mary Neff's keen humanness.

Dr. Carson presented the second paper, and Dr. Wylie opened the discussion of this paper by saying that in his remarks there would be no personal feeling. That to his mind a fee bill would be nonsense. That Dr. Woodall hit the nail on the head when he said it was all a matter of selling personality; and that he considered it a matter of playing straight with patients. Commenting on the loan business of Christy, said it was not so easy as Dr. Carson's paper led one to beieve. His experience with collection agents and agencies was that they are "the bunk". Says that people not qualified to judge of inefficiency; and vigorously condemned the contract system as in operation at laboratories.

Dr. Goodrich stated he did not feel there was any way of regulating fees; that each physician and each patient should be a law unto himself. Also said in a recent interview a young attorney of Phoenix had inquired of him if it would not be possible for the profession to insure him enough income so that he would be able to devote his entire time to collections for physicians.

Dr. McLoone feels that a fee of $50 for obstetric cases is absurdly small; believes in not overcharging the rich, nor undercharging poor; but to charge each patient for fair value of actual work performed. Thinks collectors of little avail; and advises against giving prices to patients over the telephone, as in most cases it is only a case of "shopping".

Dr. Mills ,being called by the chair to defend laboratory contracts, stated that only by the contract method could an efficient labo-

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ratory be made available, and that it resulted in much good by securing to the poor laboratory service that they would otherwise have to do without, many times much to their detriment. That it stimulates having necessary laboratories work done that otherwise would not be done.

Dr. Holmes ardently supported the contract with laboratories on the same grounds. Dr. Felch agrees and says that laboratory contracts are not to be considered "fee splitting".

Dr. Jordan thought laboratory contracts and their beneficial results should be discussed with patients that they may fully understand the advantages.

Dr. Ellis held just the opposite view, thinking it extremely bad business to discuss laboratory methods and fees with patient.

Dr. Bannister thinks laboratory examinations an essential part of routine office work and that patients should all be given this service when required.

Dr. Sweek disagreed with Dr. Wylie on matter of contracts and vigorously defended them as essential to the maintenance of efficient men on laboratory staff, citing the history of the past ten years from the birth of the laboratory to the present time, claiming that by the means of income assured, Phoenix today has laboratory facilities not equaled in any city of the United States.

(Note: At this time, Dr. Burton was called away to attend an emergency case, and further notes of the meeting were not secured.)

ST. JOSEPH'S HOSPITAL STAFF MEETING

(Phoenix, Arizona)

The meeting of the staff of St. Joseph's Hospital of Phoenix, Ariz., held on January 10, was the annual meeting of the organization. The staff members were the guests of the hospital at a dinner served by the Professional and Business Women's Club; thirty-five members of the staff were in attendance. No scientific program was presented, and the social hour being followed by the routine business scheduled for the annual meeting.

Minutes of the last meeting were read and approved. The secretary read a proposed amendment to the constitution providing that no member of the staff would be eligible to election to an office or standing committee, at the annual election, who had not attended seventy-five per cent of the meetings of the staff during the preceding year. This is to be voted on at the next staff meeting.

The chairman, Dr. Wylie, announced that a primary ballot would be taken for the offices of chairman, secretary and five members of the executive committee—any member receiving five votes would be declared nominated. The result of the first ballot was that Dr. Win Wylie was elected chairman, receiving every vote except his own, and Dr. Watkins was also elected secretary by a vote which lacked one of being unanimous. Dr. Willard Smith received a mapority of the votes cast for a place on the Executive Committee, and was declared elected. On the next ballot, Drs. W. A. Schwartz and Dr. Fred Holmes were elected members of the Executive Committee. On the third ballot, the three members receiving the highest votes were Drs. George Goodrich, W. O. Sweek and J. J. McLoone. When Dr. Goodrich asked that his name be dropped, the chair ruled that Drs. Sweek and McLoone were elected to the two remaining places on the Executive Committee by the withdrawal of Dr. Goodrich.

The staff organization for the year 1924 will consist, therefore, of the following:

Chairman—Dr. Win Wylie.

Secretary—Dr. W. Warner Watkins.

Executive Committee—Dr. Willard Smith, Dr. W. A. Schwartz, Dr. Fred Holmes, Dr. W. O. Sweek, Dr. J. J. McLoone.

The meeting adjourned to meet on February 7.

W. WARNER WATKINS, Secretary.

A NEW A. C. S. MONOGRAPH

The publication of a new American Chemical Society Monograph is announced by The Chemical Catalog Company of New York. This recent book by Dr. George W. Raiziss, Ph.D., and Joseph L. Gavron, B. S., is entitled "Organic Arsenical Compounds." It is probably the most complete and comprehensive work on this subject that has ever been published.

Dr. Raiziss, Professor of Chemotherapy, Graduate School of Medicine, University of Pennsylvania, is well known for his research work and writings on arsenical compounds. He was the first laboratory worker in the United States to successfully develop American made arsphenamines for use in the treatment of syphilis. Mr. Joseph L. Gavron has been asociated with Dr. Raiziss in literary and laboratory work done in The Dermatological Research Laboratories of Philadelphia.

While this volume of 550 pages covers exhaustively the entire field of arsenicals from a chemical viewpoint, there is much of interest to those physicians particularly interested in the Chemotherapy of the arsphenamines.

NOSTIC ANATOMY.—By Charles B. Slade, M. D., formerly chief of clinic in general medicine, University and Bellevue Hospital Medical College. Third edition. Thoroughly revised; 12 mo. of 179 pages, illustrated. Philadelphia and London. W. B. Saunders Co.

This little book on physical examination is very valuable to the medical student. The illustrations are very good and numerous. The importance of auscultation after cough should be emphasized in the chapter on auscultation. It would be well also to emphasize the importance of comparing the pulse rate after exercise with that while the body is at rest. The chapter on blood pressure is exceptionally good. H. F. G.



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ARIZONA DEACONESS HOSPITAL
(Phoenix, Arizona)

(Dr. H. L. Goss, Secretary of Staff)

A special meeting of the Medical and Surgical Staff of the Arizona Deaconess Hospital was held on January 11. The object of this meeting was to hear a proposed constitution which had been approved by the Medical Council. The following staff members were present: Drs. Drane, Mills, Thayer, Garrison, Little, Watkins, Thomas, Ellis, Goodrich, Couch, Felch, Hicks, Palmer (C. B.), Shupe and Goss.

The chairman, Dr. W. C. Ellis, presided, and the proposed constitution was read; then it was adopted section by section, with certain modifications which were suggested and voted upon. Upon motion of Dr. Garrison, seconded by Dr. Thomas, a clause was inserted providing that all staff members who desired to serve be given places on the standing committees. Another change, providing that the staff quorum be ten members, instead of fifteen as proposed, was adopted. The constitution as a whole was then adopted unanimously. The final constitution and by-laws, as adopted, was as follows:

CONSTITUTION AND BY-LAWS OF THE MEDICAL AND SURGICAL STAFF OF THE ARIZONA DEACONESS HOSPITAL

Article I—Name

The name of this organization shall be the Medical and Surgical Staff of the Arizona Deaconess Hospital.

Article II—Purpose

The purpose for which this staff is organized is to promote the highest standards of medical and surgical practice in this Hospital.

The staff will have no executive powers, but its functions are to be advisory, its rules and decisions being subject to the final approval of the governing board of the Hospital.

In accordance with this purpose, the medical council may adopt rules of practice to govern the handling of patients in the hospital, these rules to be binding on all members of the staff after they are approved by the governing board of the institution.

Article III—Membership

Membership in the Medical and Surgical Staff of the Arizona Deaconess Hospital shall be restricted to those physicians, surgeons and dentists of Maricopa County who agree to conform to the requirements hereinafter named; who are of good moral character and ethical standing; who do not practice the division of fees under any guise whatever; and who are elected to such membership by the staff at a regular meeting.

Article IV—Officers

The officers of the staff shall consist of a president, a secretary, a medical council, and the standing committees of the staff.

The President and Secretary of the staff shall be elected at the annual meeting by a majority vote of the staff members present and voting.

The Medical Council shall consist of the president, the secretary of the staff, who shall be, respectively, the chairman and secretary of the council, the chairman of the standing committees named below, and the superintendent of the hospital.

The standing committees shall be appointed by the president, after the annual meeting, and shall include all staff members desiring to serve. The personnel shall be subject to the approval of the governing board of the hospital before assuming office. The following are the standing committees:

(a) Committee on medical practice.
(b) Committee on surgical practice.
(c) Committee on diagnosis.
(d) Committee on records.
(e) Committee on obstetrics and nurses.

Article V—Duties of Officers and Committees

The **President** of the staff shall organize the service in general and exercise a general oversight over the work done in the hospital, bringing to the attention of the council such matters as he considers merits attention. He shall preside at staff and council meetings, and may with the consent of the council, appoint temporary committees for specific work. He shall be ex-officio member of all standing committees.

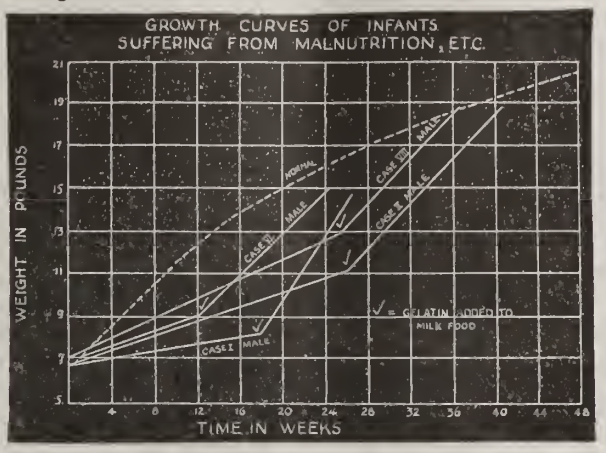
Sec. 2. The **Secretary** of the staff shall keep the records of the staff and council meetings; take charge of and keep the files of the staff; send out such notices to the staff or council as may be required; act as chairman of the program committee for the staff meetings, selecting and arranging the material for discussion, after approval of this material by the council.

Sec. 3. The **Medical Council** shall hold regular meetings to discuss the entire work of the hospital; to receive from the committees their suggestions, recommendations and reports; to review the clinical records for criticism or for discussion in the staff meetings. The council may refer matters to the standing committees, to special committees, to the superintendent, or to the staff for consideration or action. Four members of the council shall constitute a quorum for the transaction of business at any regular or called meeting.

Sec. 4. Each of the standing committees shall formulate the rules which are to govern their respective lines of work, these rules to become effective after approval by the council.

Sec. 5. The **Committee on Medical Practices** shall superintend the management of medical cases in the hospital. They may make recommendations to the council regarding medical, sanitary, dietary, nursing or therapeutic equipment or service. With the consent of the council, they may organize the medical work of the hospital into departments. They shall have referred to them all criticisms which come within the province of medical practice.

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Sec. 6. The **Committee on Surgical Practice** shall have supervision over the surgical departments of the hospital and matters relating to surgical practice and equipment. They may recommend to the council changes and improvements in the surgical work, and the proper organization of the surgical work into departments. They shall have referred to them any criticisms made regarding surgical practices.

Sec. 7. The **Committee on Diagnosis** shall have supervision over the special diagnostic departments and procedures. They shall outline the routine diagnostic tests which are to be performed on patients, subject to the approval of the council. This committee may refer to the council instances of negligence to make proper use of diagnostic methods available, and shall have referred to it, for advice, criticisms regarding diagnostic procedures.

Sec. 8. The **Committee on Records** shall outline the scheme and form of records which are to be kept on the patients in the hospital in the various departments. They shall have general supervision over the records kept on patients treated in the hospital, and shall see that the same are properly written and filed. They shall bring to the attention of the council failures to keep proper records. They shall have referred to them criticisms and suggestions regarding the proper recording of clinical histories of patients.

Sec. 9. The **Committee on Obstetrics** shall have supervision over the obstetrical department of the hospital and matters relating to obstetrical practice and equipment. They may recommend to the council changes and improvements in the obstetrical work. The council may refer to them any criticisms made regarding the obstetric practice.

Sec. 10. The **Committee on Nurses** shall have general supervision over the training staff; they shall outline the curriculum of lectures and practical training, organize the staff of lecturers, and have general oversight over the training school; they shall advise with the superintendent regarding the housing and discipline of the nurses in training. General complaints regarding the nursing service shall be referred to this committee for advice, though specific cases of such improper service may be investigated by the medical or surgical committees, as the case may demand.

Sec. 11. All actions and recommendations of all committees shall be reported to the medical couhcil for consideration and advice.

Article VI—Meetings

The staff shall meet monthly, on the fourth Saturday evening, for the purpose of discussing questions which may be referred by the council, or to discuss clinical cases for instruction and guidance in the betterment of the medical and surgical service in the hospital, which may be referred to it by the council, or to discuss clinical cases for instruction and guidance in the betterment of the medical and surgical work of the hospital.

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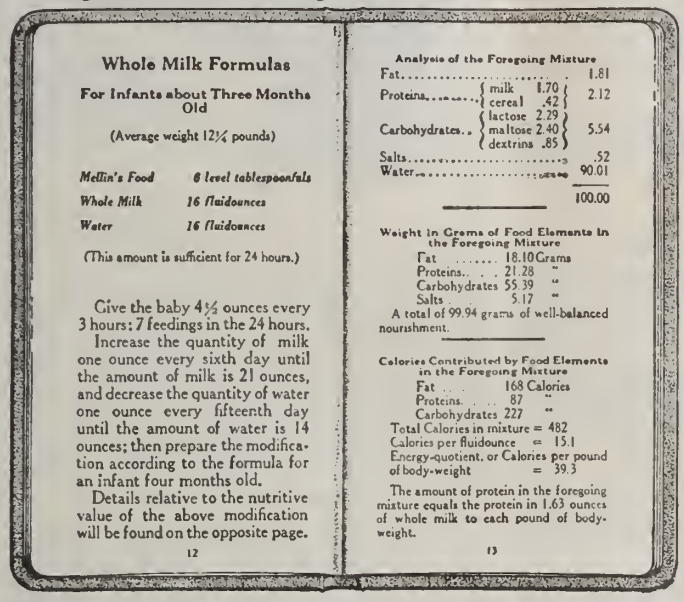
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For Infants about Three Months Old

(Average weight 12¼ pounds)

Mellin's Food	*6 level tablespoonfuls*
Whole Milk	*16 fluidounces*
Water	*16 fluidounces*

(This amount is sufficient for 24 hours.)

Give the baby 4½ ounces every 3 hours: 7 feedings in the 24 hours.

Increase the quantity of milk one ounce every sixth day until the amount of milk is 21 ounces, and decrease the quantity of water one ounce every fifteenth day until the amount of water is 14 ounces; then prepare the modification according to the formula for an infant four months old.

Details relative to the nutritive value of the above modification will be found on the opposite page.

12

Analysis of the Foregoing Mixture

Fat			1.81
Proteins	milk 1.70	cereal .42	2.12
Carbohydrates	lactose 2.29	maltose 2.40	dextrins .85	5.54
Salts			.52
Water			90.01
			100.00

Weight in Grams of Food Elements in the Foregoing Mixture

Fat	18.10 Grams
Proteins	21.28 "
Carbohydrates	55.39 "
Salts	5.17 "

A total of 99.94 grams of well-balanced nourishment.

Calories Contributed by Food Elements in the Foregoing Mixture

Fat	168 Calories
Proteins	87 "
Carbohydrates	227 "
Total Calories in mixture	= 482
Calories per fluidounce	= 15.1
Energy-quotient, or Calories per pound of body-weight	= 39.3

The amount of protein in the foregoing mixture equals the protein in 1.63 ounces of whole milk to each pound of body-weight.

13

Special formulas calculated to meet conditions other than normal, with suggestions for their practical application, broaden the scope of the work, which in its entirety marks a distinct advance toward a better understanding of infants' nutrition.

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The annual meeting of the staff shall be the regular October meeting of each year.

Ten members of the staff shall constitute a quorum at any regular or called meeting.

Special meetings of the staff may be called upon order of the Medical Council.

The order of business at regular meetings shall be:

1. Minutes of last meeting.
2. Reports of officers and committees.
3. Unfinished business.
4. New business.
5. Election of officers (annual meeting).
6. Suggestions for the good of the hospital service.
7. Clinical program.
8. Adjournment.

Article VIII—Amendments

This constitution may be amended at any regular meeting by a two-thirds vote of the staff members present, and voting, provided the proposed amendment has been read at the preceding regular meeting.

This constitution and any amendment altering the rules of practice in the hospital are to be approved by the governing board of the hospital before becoming effective.

BY-LAWS

Article I. The staff shall be an open staff in all its departments.

Article II. In order to conform to the requirements for all Class A Hospitals, the members of the staff hereby agree to practice according to the following principles:

"I hereby declare that during such time as I consider myself eligible to the privileges of THE ARIZONA DEACONESS HOSPITAL, I shall conform to the principle not to engage in the practice of division of fees under any guise whatever. By this principle, I understand that I am not to collect fees for others referring patients to me, nor to permit others to collect fees for me, nor to make joint fees with physicians or surgeons referring patients to me for operation or consultation, nor knowingly to permit any agent or associate of mine to do so."

The hospital superintendent, Mr. Bowman, asked the opinion of the staff as to the advisability of taking tuberculosis patients into the hospital. Following a short discussion, the opinion of the staff was that tuberculosis patients must, of necessity, be accepted, if they applied for admission.

The meeting adjourned to meet the last Saturday in January.

January 26, 1924.

The first regular staff meeting of the Arizona Deaconess Hospital was held in the Directors' Room of the hospital, after a 6:30 dinner in the dining room of the institution. About twenty-five members of the staff were present. Meeting was called to order at 7:30 by the staff chairman, Dr. W. C. Ellis. In the absence of the secretary (Dr. Goss), Dr. I. L. Garrison was asked to serve in that



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capacity. The minutes of the called meeting of January 11 were read and approved.

Dr. Goodrich, chairman of the Surgical Committee, asked that all surgeons hand in their standing orders for the guidance of the nursing staff.

The first clinical case was presented by Dr. C. B. Palmer. Man, age 81, malaria at 20, miner most of his life; three years ago was struck by a log which crushed his hip, and he has had to be catheterized twice a day since. On January 1 began to have bad pain in bladder, requiring catheterization several times a day; has been treated in California and elsewhere by injections of ten per cent argyrol. Urine is alkaline ,some albumen and much pus.

Physical examination shows double cataract, chest normal, arteries somewhat hardened, some cardiac weakness; has been using soft rubber catheter; inserted metal catheter and found stone; residual urine four ounces, prostate much enlarged; intense pain and much irritation at neck of bladder. Decided to remove stone; could not stand to be cystoscoped and have stone removed through ureter, so it was done under local anesthesia, using two per cent novocain. There was no pain until bladder wall was reached; on account of infection did not anesthetize bladder; decided to attend to the prostate at second stage. Bladder was badly infected and full of pus. After operation there was some sloughing off of superficial tissues, due to extreme age. At this time pus has almost entirely disappeared from the urine and the surprising result is that the enlarged prostate has subsided and is now normal size.

Dr. Goodrich stated that he thought Dr. Palmer used very good discretion in the operation and in the anesthesia. Sacral anesthesia is also a very good procedure in such cases; there may be some temporary paralysis, but this will clear up. Prostate can be easily removed under local, by injecting the mucous membrane after entering the bladder. Bladder stones may form very much more quickly and readily than is commonly believed.

In confirming the last statement, Dr. Smith recalled an old man from whom the prostate was removed and retention catheter placed in for seven days. At the end of this time there was considerable difficulty in removing the catheter because of a stony concretion which had formed on the end of it; this concretion, which was the size of a pullet egg, had formed in seven days, and bladder stones, given a nidus to form around, can develop just as rapidly.

In closing discussion, Dr. Palmer stated that he did not know how long the patient had the stone; in diagnosing stones, it is unusually considered that the methods in order of certainty are (1) cystoscope, (2) sound, and (3) x-ray. The acute symptoms had developed only ten days before, due to irritation of the stone; the most essential things in such a case is to secure drainage

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and use conservatism. Patients 81 years old do not recover if too much is done.

Dr. Carson did not think that methods of anesthesia were fairly compared; believes that pneumonia will occur as frequently after local as after general anesthesia. In considering whether general anesthesia should be used in this particular case, we must compare the least harmful general anesthesia (which is nitrous oxide and oxygen) with novocain. Was a little surprised at the use of two per cent novocain, when one-half per cent will do the work. Patients will have to be individualized and the anesthetic used for which the surgeon is best fitted. Having been operated under both methods, would prefer nitrous-oxide as a personal preference.

Dr. Felch presented the second case, which was an injury of the leg, resulting in gangrene. Patient was a Mexican boy, 14 years old, whose foot had been run over and crushed by a heavy wagon. The tibia and fibula were fractured just above the ankle; after being in the Southside Hospital for several days, gangrene developed in the foot, and patient was sent to Phoenix for operation. On entrance to the Deaconess Hospital on December 26, there was dry gangrene of the foot, and amputation was done three inches below the knee. Although the arterial trunks bled freely, gangrene started in again after a few days, and amputation was done at the middle of the thigh under spinal anesthesia; has had very little drainage and very little pain.

Dr. Greer, who saw the case incidentally, had the impression that there had been some injury in the neighborhood of the knee, injuring the popliteal vessels. Dr. Felch had not found evidence of injury about the knee at time case was seen by him.

Dr. Watkins recalled a case, sent for x-ray examination several years ago, where there had been a dislocation at the knee, which was reduced. At time of x-ray, there was no visible bone or joint injury, but the popliteal vessels had been injured so that thrombosis occurred and gangrene set in, forcing amputation at the middle of thigh.

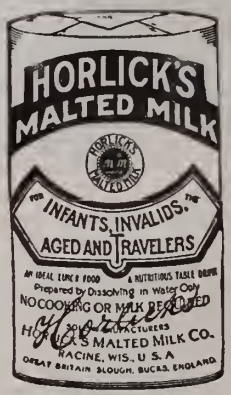
Dr. Stroud recalled a case of knee dislocation from fall of log. On the fourth day, gangrene threatened at the ankle; when operated there was a shell of bone torn off the tibia which had injured the vessel.

Dr. McIntyre stated that it had been his advice that the amputation be done below the knee, as he thought there would be better chance for good function with artificial limb.

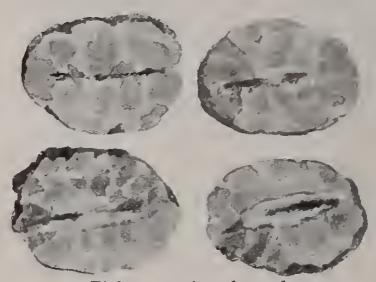
Dr. Smith stated that the artificial limb manufacturers prefer a thigh stump to a leg stump, on account of the greater protection given the bone by the soft tissues; below the knee, there is a conical, painful stump, with bone very near the surface. Knee will lose its function after a time, anyway.

Dr. Felch stated that he has one patient with two artificial legs attached to leg stumps, and only a very close observer could tell that he has cork legs; the harness does not go above the pelvis.

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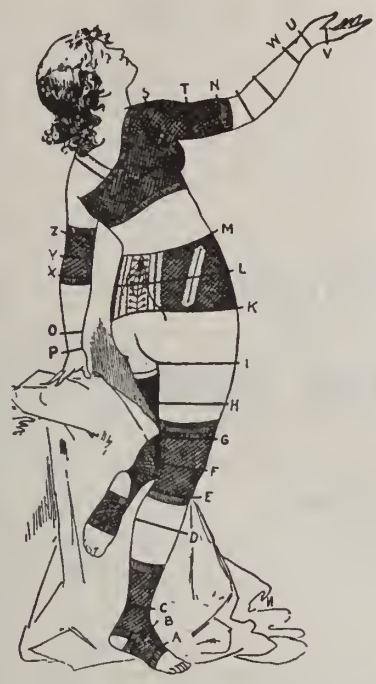
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Dr. Stroud reported the third case, which was under the observation of Dr. McCall. Ventral hernia had been diagnosed, occurring in an appendectomy wound. There was a large ovoid mass below McBurney's point, size of a small football. Fibroid had been diagnosed at one time. Patient had the facies of the acute abdomen. Under anesthesia at the hospital, reduction of hernia was attempted, but failed, so operation was undertaken. Through incision above the old scar, came down to the root of the omentum, which had come through the vent. Part of the strangulated intestines looked very black and it was a question whether they would recover; under hot towels, they recovered sufficiently that it was decided not to amputate. Recovery has been uneventful.

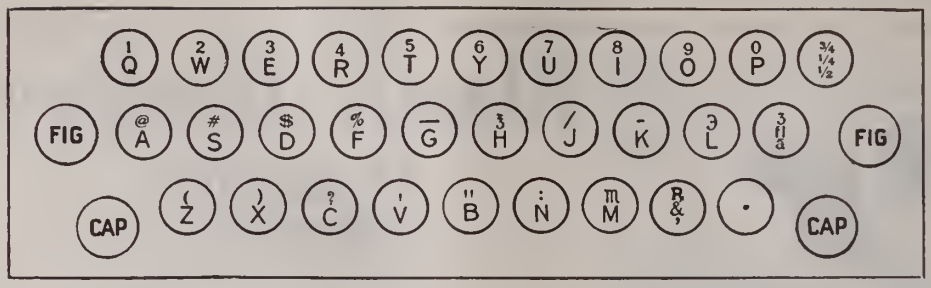
Dr. Shupe stated that he has always found fecal vomiting a prominent symptom in bowel obstruction. Dr. Stroud stated that this is usual, but in this case there had been little vomiting, because reverse peristalsis had not yet started.

ABSTRACTS FROM CURRENT LITERATURE

X-Ray Therapy of the Thyroid Gland. By John G. Williams, M. D., Brooklyn, N. Y. New York Medical Journal and Medical Record, October 17, 1923. P. 480.

Classify goitres as simple, cystic, colloidal, adenoma, exophthalmic and malignant. Of these the adenomata with hyperthyroid symptoms, the exophthmalmic and the malignant are suitable for x-ray therapy.

The author reviews the reports of a number of x-ray workers, including Halstead, Pfahler and Zulick, Grier, Lichty, Holmes and Merrill, Tyler, Soiland, Allison, Beard and McKinley, Seymour, Story. He quotes Means and Aub as reporting the largest series of cases, accompanied by careful metabolic studies, as compared with parallel cases treated surgically; the conclusions of these latter writers were that (1) Results were equally good with x-rays or surgery after two or three years; (2) after surgery the metabolism shows a rapid preliminary fall, followed by a secondary rise, while with x-ray there is a gradual progressive fall; (3) in securing the same results with surgery or x-rays a lesser rest factor is necessary with x-ray treatment; with x-rays there is no mortality; (4) patients treated surgically do better and the risk of operation is less if they have previously had their thyroid and thymus glands irradiated; (5) risk of operation is greater and need for preoperative x-ray treatment is greater in cases with a very high metabolism and moderate tachycardia than in those with extreme tachycardia and moderate metabolism elevation; (6) the safest program for the treatment of exophthalmic goitre as a whole is the roentgen irradiation of the thyroid and thymus glands in all cases, with surgery re-



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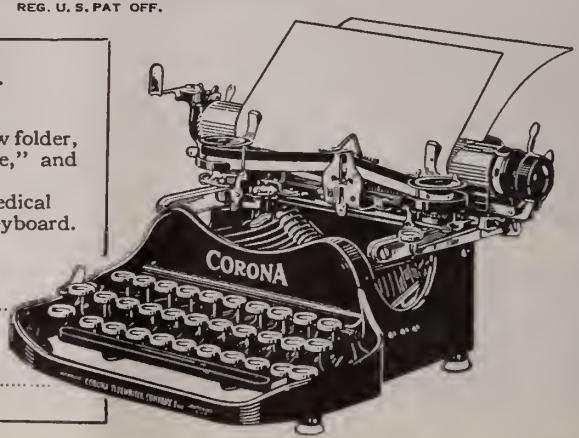
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served for those who do not do well; (7) surgery is contraindicated in patients whose metabolism is rising in spite of complete rest in bed and also in patients with moderate tachycardia and great metabolism increase, except when they have previously had thyroid and thymus glands radiated by x-ray.

The opposing views of C. H. Mayo and Chile are quoted and discussed.

Experiences With Radium in the Treatment of Certain Fibromas and Metrorrhagias. By A. Stern, M. D., Sioux Falls, S. D. The Journal-Lancet, vol. xliii, 466 (September. 1923).

The author quotes Kelly, who said that "he who will give his patients the same consideration he would his wife and sisters will put radium first in the treatment of fibromas."

Neither radium nor irradiation can be used exclusively, if the best interests of the patients are to be served.

(1) Radium is indicated and surgery contraindicated in essential hemorrhage, including fibrosis, hyperplastic endometritis, and any hemorrhage not due to purpura hemorrhagica; in fibromas of any size where complications exist that make surgery extra hazardous, such as severe anemia, chronic myocarditis, hypertension, obesity, valvular heart lesions.

(2) Cases in which radium or surgery may be used, with radium preferred, include uncomplicated cases of fibromas in women over 38, where the tumors are not above medium sized (not reaching above the umbilicus).

(3) Cases in which radium or surgery may be used, but surgery is preferred, include fibromas in women under 38, provided the operation is a myomectomy; large fibromas reaching above the navel at any age; submucous tumors hanging in the uterine cavity or protruding from the cervix; fibromas complicated by cancer of the uterine body; toxic myoma.

(4) Surgery is indicated and radium contraindicated in degenerating myoma; myoma complicated with other surgical conditions requiring laparotomy, such as appendicitis, ovarian cyst, gallstones; in inflammatory diseases of the adnexa.

X-Ray Therapy in Hyperthyroidism. By H. Kennon Dunham, M. D., Cincinnati, Ohio. The Ohio State Med. Jour., xix, 713.

This paper, said to be the author's first paper on this subject, represents the conclusions of twenty years of careful, conscientious work and observation. He comments favorably on Richardson's article in the March, 1923, number of the Jour. A. M. A., as showing a firm grasp of the pathological and clinical side of the subject and an understanding of the ends at which treatment should be aimed; the author dissents from the surgical aspect of the treatment.

For the consideration of treatment, goitre is divided into two groups: (1) The large non-toxic goitres, which are not relieved by x-ray treatment, but demand surgery, and (2) the toxic group without pressume symptoms, which can be relieved by x-ray treatment. Where there are mixtures of the two types, x-ray will relieve the toxicity, but not the tumor. The battle ground between surgery and x-ray is over the cases in which the tumor is not bothering the patient, but in which there are definite toxic symptoms due to increase of the gland function, and recognized by rapid pulse, tremor, a psychosis in which fear predominates, loss of weight, profuse perspiration, and increased basal metabolic rate. Such cases can best be treated by the roentgen ray.

Treatments of today are rest and time, medical, surgical and x-ray.

The author commends the honesty of Richardson, as contrasted with that of some other surgeons. Richardson states, referring to operation following the use of the x-ray, "in these cases there has been no appreciable increase in difficulty of operation. The gland has not been adherent to the anterior muscles. The only change I have noted has been a somewhat firmer consistency of the gland, and possibly a slight increase in fixation posteriorly. The increased operative difficulty has been no more than after preliminary ligation."

A diagnosis is the first and most important factor in the treatment of goitre. Any man may have fine statistics if he will treat cases with metabolic rates already within normal limits.

The x-ray can be used to destroy the glandular tissue of the thyroid gradually and under constant control and, when compared with the guesswork removal of glandular substance by surgery, is like preparing a piece of wood by using an axe or shaping it with a plane.

Treatment should extend over a long period of time and the patient should be under constant observation, with every factor of the case treated. Results can be predicted, but not the time in which they can be secured.

Aside from the removal of the tumor mass, exophthalmic goitre and hyperthyroidism can be better, more surely and more safely controlled by the proper use of x-ray than by any surgical operation known today. The only lesions treated so satisfactorily are carbuncle, fibroid of the uterus and tuberculous glands.

Cancer of the Breast: Biological Considerations in Radiotherapy. By M. J. Sittenfield, M. ., New York. New York Med. Jour. and Med. Record, October 17, 1923, p. 487.

Neither surgeon nor radiotherapist should attempt to treat cancer without a thorough knowledge of the behavior of malignant tumor, or a familiarity with the anatomical spread of the disease. Though until we know something definite about the biological laws that cause or are responsible for tissue over-

growth and tumor formation, we shall be at a loss to understand the various phases of malignancy. In one type of carcinomata, the pathological, biological and clinical picture is quite separate and distinct from carcinomata of another group. For example, tumors about the face are almost benign in their behavior in contrast with carcinomata of the tongue, breast or stomach. Similar striking differences are noted in tumors of the cervix and those of the fundus of the uterus.

Similar degrees of malignancy are met with in breast tumors. A mammary tumor may occur as a localized growth, stationary for a long time, or growing very slowly without attempt at metastasis, suddenly flaring up and metastasizing into the neighboring lymph nodes. In a second group, the tumor starts locally in the breast, spreading more or less rapidly in various directions, either by lymphatics into the axillary or supraclavicular regions or by the blood stream to distant parts. In a third group, in which malignant degeneration develops at more than one area in the same breast, the different foci coalescing to form one mass. There is an uncommon type in which malignancy develops in both breasts.

The therapeutic indications will vary with the type of tumor. In the first group of purely local tumor without axillary involvement, radical surgery will be effective.

In the second group, with involvement of axillary lymph nodes, surgical results have been disappointing, though surgery alone has shown apparent cures; radiotherapy has also shown some very encouraging results, so that an intelligent combination of the two methods would seem to be a logical plan.

The important physical and biological consideration is to administer an efficient uniform dose of radiation to destroy or annihilate all malignant disease throughout. How this is to be accomplished will depend on the personal equation of the radiotherapist. He must inform himself of the exact depth of the lesion from the surface of the skin, and must know in what direction it is likely to spread or disseminate. The dose must be carefully calculated by accurate physical measurements, in order to administer with precision an even and homogeneous radiation to the tumor itself.

Insufficient emphasis has heretofore been laid on maintaining the general constitutional well-being of the patient. The individual with the lesion must be taken into consideration as to her physical state, her power to react to intensive radiation. While radiation as we know it today is no panacea for cancer, radiation intelligently combined with surgery in the form of preoperative raying followed by radical surgery, and intensive postoperative radiation, will effect a favorable result in many so-called hopeless cases.

Cancer of the Uterus. By Verne C. Hunt, M. D., Mayo Clinic, Rochester, Minn. Journal-Lancet, xliii, 566 (Nov. 15. 1923).

In a series of 885 cases of cancer of the uterus observed between 1910 and 1919, 73.3 per cent were in the cervix and 29.7 per cent in the uterus. As a rule, cervical cancer is the most malignant, involves adjacent structuers early and tends to recur; cancer of the body tends to remain localized, to metastasize late and does not tend to recur. While cancer of the body is attended with better results than cancer of the cervix, the results bear a direct relation to the degree of malignancy based on the cell differentiation described by Broders.

Cancer of the body is usually operable by abdominal hysterectomy. If inoperable, intrauterine radium is used as a palliative.

The present status of treatment of cancer of the cervix at the Mayo Clinic is as follows: (1) For early cancer confined to the canal, abdominal hysterectomy, or, in the presence of prolapse, vaginal hysterectomy, without preliminary radiation; (2) if entire cervix is involved, radiation is used preliminary to hysterectomy; (3) in inoperable cases, radium alone is used. All cases that have been subjected to hysterectomy have postoperative radiation and postoperative local recurrences have radium.

It is important that during the first series of radium treatments all the radium that is ever to be given shall be administered, this amounting to 6,000 or 7,000 milligram hours. It is applied to the cervix, vagina and fundus in doses of 700 milligram hours every two or three days, until the full amount to be given has been administered—usually requiring amout three weeks.

All cases treated by hysterectomy receive, postoperatively, three or four treatments of 700 milligram hours in the vagina and deep x-ray exposure over the abdomen and back routinely.

"It is unlikely that further development of the present accepted methods of treatment of cancer of the uterus, particularly of the cervix, or the institution of new methods, will materially improve the results. The time of application and not the method of treatment is at fault."

Better results will come through co-operation in the educational cancer campaign.

CHAVES COUNTY (N. M.) MEDICAL SOCIETY

(Dr. C. M. Yater, Secretary, Roswell, N. M.)

This society meets regularly every Tuesday night except the third Tuesday, which is the regular meeting of the Hospital Staff. For the past year we have been studying the Case Records of the Massachusetts General Hospital and find them both interesting and instructive.

Our plan is to have the secretary read the report of the case; then each one present writes down his diagnosis and passes it to the secretary. When all are in, each man's diagnosis is read out and he discusses the case, giving his reasons for making the particular diagnosis. After all have discussed the case there is a general discussion, after which the

discussion of the hospital people is read, together with the autopsy, and a check up is made as to how far each man hit (or missed) the diagnosis.

We usually have time to dispose of two Case Reports at each meeting, besides report of cases in the members' work.

At the meeting of the society held on January 22, Dr. Kinsinger made further report on the case of diabetes mellitus recently reported as apparently recovered by taking the preparation advertised by the Harrower Laboratory; at this time he has gangrene of both toes, although he does not show any glycosuria.

It was suggested by Dr. Beeson that possibly this patient might have a high sugar threshold and, while not showing sugar in the urine, could very likely have a decided hyperglycemia. Dr. Yater thought the same, and that it was possible for a sugar threshold to be so high that one could die with diabetes and never show sugar coming into the urine. The only way to be sure is to make a blood-sugar estimation.

At this same meeting the county commissioners requested an expression from the medical society on the advisability of requiring the County Health Officer to take on the duties of County Physician.

As a result of this request the following resolutions was unanimously passed:

"Resolved, That the Chaves County Medical Society is unalterably opposed to the commissioners requiring the County Health Officer to do the work of the County Physician. In the past few years the Department of Health has attempted to have the county health department establish a free clinic in Roswell and the medical society has fought the idea from the beginning, taking the view that this is a first step toward state medicine and that requiring the County Health Officer to do the work of the County Physician is a step toward a local free clinic.

The society has never decried free work for the indigent, in fact has always encouraged it, but is opposed to the state doing free practice for those who are amply able to pay for it."

Dr. Fisher reported a case of a man, 91 years old, with retention of urine and very large prostate. Catheterization being impossible, suprapubic drainage was instituted. There was a diversity of opinion among the doctors as to the advisability of doing a prostatectomy on one of that age.

NEW MEXICO PERSONAL ITEMS

DR. J. A. SMITH of Roswell has been appointed County Health Officer for Chaves County, taking the place made vacant by the resignation of Dr. K. A. Bryant.

DR. H. V. Fall of Roswell has returned from his sojourn in south Texas somewhat improved in health and it is hoped he may soon be able to meet with the society again.

DR. W. E. GOODSELL of Roswell has been

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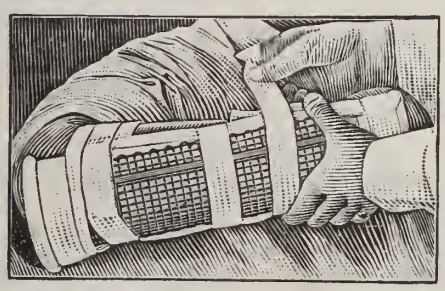
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elected a member of the Chaves County Medical Society.

THE SECRETARY OF THE NEW MEXICO MEDICAL SOCIETY has 25 applications for membership from men in counties where there is no organized county society, and is confidently expecting to go to the meeting in Santa Fe on May 27 with not less than fifty applications. These are men who have not, heretofore, affiliated with the State Society.

A NEW SILVER COMPOUND

Of silver compounds there is no end. Always, it seems, the advantage is offset, in part at least, by some disadvantage; and to the credit of the manufacturing chemist be it said that the disadvantages as they appear stimulate further research, to the end that a perfect product may be evolved. One of the latest and in one sense the most acceptable of these compounds is Neo-Silvol.

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ARIZONA PERSONALS

DR. B. S. GUYTON of Oxford, Miss., a specialist in eye, ear, nose and throat work, has been visiting several localities in Arizona, seeking the combination of a climate beneficial to asthma in a community desiring a specialist in his line.

DR. MARTIN G. FRONSKE of Flagstaff was a visitor to Phoenix recently, bringing a patient for some special examinations.

DR. NELSON D. BRAYTON of Miami spent a day or two in Phoenix recently, having brought his wife for consultation regarding treatment for hay fever.

DR. JOHN E. BACON of Miami was much in evidence at the recent Industrial Congress in Phoenix, being the representative of the medical profession on the Board of Directors. Since the adjournment of the congress, Dr. Bacon has been endeavoring to enlist the interest of the individual members of the profession throughout the state in the organization.

DR. H. T. SOUTHWORTH, state commander of the American Legion, was in Phoenix attending the Industrial Congress the last part of January.

DR. E. PAYNE PALMER of Phoenix, who has been very sick with pneumonia for the past two weeks, is slowly improving. Following a long period of very hard work, an attack of influenza found Dr. Palmer with a lowered resistance and pneumonia resulted. For many days the family and a multitude of friends had much cause for apprehension, but it is now believed that the danger period has passed.

MRS. W. I. SIMPSON, whose serious illness was mentioned in this journal last month, has recently passed away. The many professional friends of Dr. Simpson, formerly associated with Dr. Ancil Martin in Phoenix, and one time president of the Maricopa County Medical Society, extend to him every sympathy in his bereavement.

DR. B. B. MOEUR of Tempe, who has been sojourning in Prescott for several months, has returned home and resumed his practice. Dr. Moore went to Prescott several months ago, accompanying his son, John, who developed tuberculosis after graduating in medicine. Dr. John's progress has been so satisfactory in the mile high city that "B. B." feels satisfied to leave him there under Dr. Flinn's care.

NEW MEXICO NEWS ITEMS

DR. EVELYN F. FRISBIE of Albuquerque entertained the Bernalillo County Medical Society at her home on the evening of January 2. Appropriate drinks and refreshments were served during the evening, and all members of the society are very grateful to Dr. Frisbie for the pleasant evening at her home.

MRS. L. S. PETERS, wife of Dr. L. S. Peters of Albuquerque, was recently called to Minneapolis on account of the serious illness of her mother. Since her arrival in Minneapolis she reports the condition of her mother as much improved.

MRS. H. L. HUST, wife of Dr. R. L. Hust of Albuquerque, was operated on recently. We are glad to report that she is rapidly recovering and is expected to be home within a few days.

DR. L. S. HEMMINGS of Albuquerque, who was confined to the hospital with typhoid fever last fall, is back on the job.

DR. E. T. LASSETER of Albuquerque recently spent several weeks in Chicago in postgraduate work.

DR. J. J. BERGMANS of Taos, N. M., was in Roswell on January 29, taking the examination for promotion in the Medical Reserve Corps. While here he visited the Chaves County Medical Society and was induced by the secretary of the New Mexico Medical Society to take out a membership at large in that society.

DR. H. J. ABERNATHY of Hot Springs, N. M., died on December 8, the cause of death being acute dilatation of the heart. Dr. Abernathy was born in Murphreysboro, Tenn., on November 13, 1856, and graduated from the Nashville Medical College in 1878, when he was only twenty-two years of age, and has practiced the profession ever since, being an honored member of the profession. He came to New Mexico in 1884.

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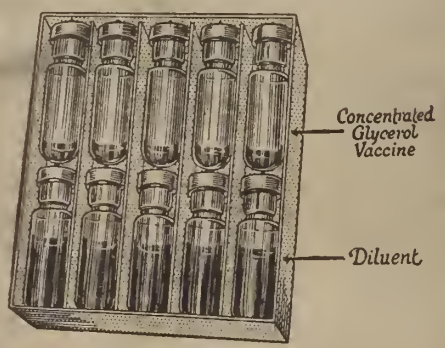
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SOUTHWESTERN MEDICINE

VOLUME VIII MARCH, 1924 No. 3

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents—See Advertising Section Page 1

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PUBLISHED MONTHLY

VOL. VIII. MARCH, 1924 No. 3

CONTENTS

ORIGINAL ARTICLES

ANGINA PECTORIS AND ITS MANAGEMENT 107
M. A. Mortensen, M. D., Battle Creek, Mich.

ROENTGENOLOGICAL SYNOPSIS OF PULMONARY TUBERCULOSIS, WITH SPECIAL REFERENCE TO THE DIAGNOSIS OF CAVITATION 114
P. Ramos-Casellas, M. D., El Paso, Texas.

THE DIAGNOSIS AND TREATMENT OF PEPTIC ULCER FROM A SURGICAL STANDPOINT 127
Wm. H. Woolston, M. D., Albuquerque, N. M.

CASE REPORT 131
W. L. Brown, M. D., El Paso, Texas.

EDITORIAL AND NEWS

DR. H. S. BENNETT (Fort Bayard, N. M.) 133
DR. HOWARD THOMPSON RETIRES 133
EL PASO COUNTY MEDICAL SOCIETY 134
CHAVES COUNTY MEDICAL SOCIETY 142
BERNALILLO COUNTY MEDICAL SOCIETY 144
MARICOPA COUNTY MEDICAL SOCIETY 144
ST. JOSEPH'S HOSPITAL STAFF MEEETING 149
DEACONESS HOSPITAL STAFF MEETING 155
PERSONALS AND NEWS 156

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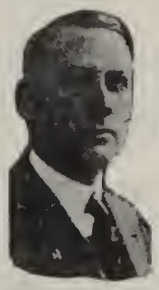
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ANGINA PECTORIS AND ITS MANAGEMENT*

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This subject has been chosen because angina pectoris belongs in a group of the most important diseases, judging from the standpoint of the mortality rate in this country; namely, the cardiovascular-renal. More than three percent of all men drafted in the late war were rejected because of organic heart disease[1]; and in the age groups over 45, organic heart disease causes more deaths than any other one disease[2]. Halsey and others estimate that sufferers from heart disease require ten percent of the total capacity of our general hospitals and constitute more than twenty percent of the visitors to the ambulatory clinics[3].

It is a well recognized fact that cardiovascular-renal diseases demand the attention of every practitioner, with careful study of their prophylaxis, their treatment, and their mortality rate. There should be organized effort, as well as universal individual effort, to study this problem from all angles, so that the frequency of cardiovascular-renal diseases may be diminished.

Angina pectoris is not a new disease, but one which has been known for centuries. A classical description was given by Wm. Heberden, about 1768, and it is almost equal to any that can be given at the present time. Before this period the disease was known by various names, perhaps most often as "asthma convulsivum". Today, angina pectoris has become very common; in all probability more so in this country than in any other part of the world, even England not excepted.

Since the publication of Heberden's description, attempts to explain the whys and wherefores of the symptoms of angina pectoris have been made by the leaders in medicine in every country. Huchard collected all the theories and explanations that had been advanced up to his time and found about eighty, and, no doubt, several have been suggested since then.

The various explanations have usually hinged on the question of whether the cause of the pain and the disease as a whole was due to changes in the first portion of the aorta, the coronary arteries and the heart muscle, or whether it was a type of spasm originating in the nervous system, in which the sympathetic or autonomic systems play a part. More recently the theory has been advanced that the pain is due to increased intragastric pressure, basing this assumption on the fact that a large percentage of the persons having angina pectoris suffer with gastric and intestinal flatulence and experience relief by belching. Verdon has

(*Read by invitation at the Ninth Annual Session of the Medical and Surgical Association of the Southwest, at El Paso, Texas, December 12, 1923.

written a volume of several hundred pages in which he explains anginal pains by increased intragastic pressure.

At the present time, the best authorities consider one or the other of two definite conditions as the cause of the symptoms of angina pectoris. One theory, sponsored by Sir Clifford Albutt, is that the disease is aortic in origin and involves principally the very beginning of the aorta. The other, advanced by Sir James MacKenzie, explains the pain as myocardial in origin, due to an insufficiency of the heart muscle and relative ischemia because of disease of the coronaries. Vasomotor variations have been held by different observers to be an explanation of certain types of angina. Nothnagel described an "angina vasomotoria".

ETIOLOGY

In spite of all the theories that have been advanced to explain the occurrence of angina pectoris, as the principal etiological factor, we must recognize arteriosclerosis, which may be general or localized. It is important to bear in mind that a patient with angina pectoris may have a perfectly normal blood pressure and no apparent changes in the peripheral arteries and still have a marked sclerosis of the beginning of the aorta and the coronaries. In my last case coming to autopsy, the patient had had a blood pressure of 120 systolic, 80 diastolic, and by palpation no evidence of arteriosclerosis could be noted in any of the peripheral arteries. Yet we found plaques of sclerosis in the arch of the aorta and the coronaries were markedly sclerotic, one being almost occluded.

Age: Hugh Stewart reports the case of a boy of 7 with angina pectoris symptoms associated with aortic valvular disease of rheumatic origin[4], and Albutt[5] describes one following rheumatic fever where the patient was only twelve and a half. In the young, local changes in the coronaries seem the most plausible explanation of the angina symptoms.

Angina pectoris due to syphilis is often found comparatively early in life, generally under 50. But when we consider all cases, the largest group is between 55 and 65, with gradually decreasing frequencies in either direction.

Heredity: With nearly every arteriosclerotic patient we are able to get a history of cardiovascular-renal disease or some constitutional disturbance, such as gout or gouty arthritis, migraine, asthma or obesity. Such persons practically always have an increased amount of uric acid in the blood; and even if in many cases we fail to find any evidence whatsoever of renal inefficiency, I am inclined to think that further study will justify us in believing that these individuals have a constitutionally defective metabolism; or, in other words, an inability properly to care for the protein part of their food. It is likely that their ability to take care of endogenous uric acid is definitely disturbed.

Infection: Both acute and chronic infections play a part in causing early appearance of angina. Lues must be recognized as extremely important, because of the profound changes in the aorta due to syphilis; and the same changes extend into the coronaries. Rheumatic infections must also be considered, since it is a well established fact that lesions of the aortic valve are frequently the result of acute rheumatism. Chronic foci of infection, such as those which occur in teeth, tonsils, gallbladder, and other organs, play a similar role. Our recent epidemics of influenza have undoubtedly hastened the onset of angina pectoris in many individuals.

All these infections are apt to produce what has been described by some as toxic angina; and, in the cases where chronic foci of infection are a cause, great relief is often obtained by their removal. Where degenerative changes have taken place, as in syphilis, and the involvement of the beginning portion of the aorta by rheumatic infections, treatment is not so productive of relief. As closely allied to these etiological factors, we

may include overindulgence in food, tobacco, alcohol, tea, coffee, and the like.

Contributory causes: Any condition causing undue cardiac labor, such as chronic renal disease or the excessive physical exertion of the athlete or the day laborer, must be looked upon as a factor conducive to arterial degeneration.

PATHOLOGY

The pathology of angina pectoris is limited almost entirely to general or localized arteriosclerosis, but the essential features are the degenerative changes in the ascending portion of the aorta and in the coronaries. In a personal interview with Wenckebach, of Vienna, we learned that in a careful study of the aorta in a large number of cases of angina pectoris the most marked pathologic findings were in the first inch of the aorta, the changes noted there frequently extending into the coronaries. In one of my cases extensive arteritis had developed in the beginning of the aorta and the coronaries without any changes in the blood vessels anywhere else in the body.

Associated with the changes in the aorta we nearly always have evidences of chronic myocarditis, or degeneration of the heart muscle. In a large proportion of cases this is probably due to ischemia resulting from partial occlusion of the coronaries.

Recent ventures in the surgical treatment of angina pectoris no doubt will stimulate more careful investigation of the pathologic conditions in the beginning aorta and the coronaries and the relation of these changes to the sympathetic nervous system.

SYMPTOMS

Symptoms of angina pectoris may appear suddenly or develop insidiously. It is important to get a careful history of each case in order to learn of the earliest manifestations. Superficially it would very often seem that the angina came on suddenly, usually after some vigorous exertion or extreme emotional disturbance, and perhaps shortly after a hearty meal. If we inquire in detail we shall find that very frequently the earliest symptoms were manifested in the form of a shortness of breath which came on more easily after moderate exertion than had been the case earlier in life. We also learn that the patient experiences a sensation of tightness or pressure beneath the sternum in conjunction with exertion or emotional stress. These symptoms may have existed for a long time and yet have been given no consideration at all. The patient's blood pressure may have been high for a number of years.

The location of the pain varies in different individuals, but the majority mention a feeling of pressure beneath the sternum, followed by intense pain that nearly always radiates upward towards the neck, the left shoulder, and extends into the arm as far as the wrist. Sometimes a sense of numbness appears first about the wrist or the elbow, later followed by the pain just described. Radiation to the right arm also occurs and occasionally we see a case where both arms become involved. The radiation sometimes extends into neck, jaw, roof of the mouth, or left ear. I have now under observation a case in which the pain begins beneath the left shoulder blade and extends through to the anterior surface of the chest and up into the arms.

When these patients describe their sensations they nearly always volunteer the information that when they stop and rest for a few moments the pain disappears. Others experience relief by belching, and these often insist that the cause of their trouble is gastric in origin.

The philosophy explaining the occurrence of the pain is still rather vague. Jonnesco[6], who was the first to treat a case of angina pectoris surgically, believed that the pain and the other symptoms of angina were due to irritation of a cardio-aortic plexus, describing them as a neuralgia of this region. Vaquez and others lean definitely towards this view. Everyone agrees that an aortitis of more or less intensity exists in all cases of true

angina, and the supposition is that this aortitis irritates the nerve filaments of the cardio-aortic plexus. Because of the occurrence of pain the supposition is that the nerve fibers in this region are sensory in type, but proof of this has not been absolute. Whether or not involvement of the coronaries alone can produce the same symptoms as the classical angina with the aortitis has not been demonstrated.

All cases of chronic aortitis do not develop symptoms of angina. Consequently, it is important for us to distinguish between this condition and angina; as a rule, we find that the aortitis manifests itself by a sense of distress beneath the sternum that is more or less continuous and may be aggravated by exertion. There is usually a definite tenderness on pressure along or near the sternum. In many cases of aortitis the patient is constantly conscious of discomfort, usually described as an ache, rather boring in character, located beneath the sternum. This is not relieved by rest or nitrites.

The pain of aneurysm must also be considered. A recent case under observation developed intense pain beneath the sternum on even moderate exertion, and with it the pallor, perspiration and other symptoms that are usually attributed to angina. Rest and nitrites did not give relief, and the attacks of pain lasted for hours unless an opiate was used. The blood pressure was only slightly increased. The pulse rate was not materially disturbed. An x-ray examination of the aortic arch revealed a fusiform dilatation of the descending portion of the aorta, which explained the occurrence of the attacks of pain.

Among the comparatively young we find a rather large group of individuals who complain of a pain in the region of the heart that as a rule does not radiate and is more or less continuous. There is rarely any sternal tenderness and frequently no evidence of organic changes in either heart or blood vessels. This type of case became especially familiar during the late war and has been described under the term irritable heart, or circulatory myasthenia. It must not be classed as angina and must be treated very differently.

In angina pectoris the blood pressure may be normal or decidedly increased, depending on the presence of renal complications or a marked general arteriosclerosis. Sometimes nervous tension and temperament must also be considered as a source of cardiac embarrassment. My experience is that those with normal or low blood pressure are usually the hardest to relieve, because we often find marked sclerosis of the peripheral arteries with extensive changes in the aorta, resulting in considerable dilatation of the arch. Diastolic pressure is many times found to be low because of this dilatation.

A study of the blood pressure is very essential, as it gives some idea of the burden the heart has to carry. The pulse pressure tells whether or not the myocardial efficiency is being encroached upon, even when at rest. A small pulse pressure should always be considered suspicious. Symptoms of myocardial inefficiency should always be carefully looked for. The capacity of the heart muscle is frequently reduced because of the age of the patient, and often much aggravated by coronary disease; sometimes in addition to this we find a valve lesion, especially aortic regurgitation, that increases the demand on the heart muscle. In angina pectoris the muscular capacity of the heart must be carefully considered because that is the basis for determining the regimen to be prescribed, including exercise and medical therapy.

It is important to ascertain whether or not shortness of breath comes on with various forms of exercise. It is not sufficient just to ask the patient whether he is short of breath, but one should inquire as to certain definite acts of exertion, such as climbing stairs or going up a slight incline, to find out when discomfort is felt. Often a history of gradually increasing dyspnea on exertion will be apparent.

The patient will also tell you that the pulse rate has increased during this period in which myocardial failure has been developing. The rate will frequently be found to be above 80, and unduly increased by slight exertion. Occasionally we get a pulse rate that drops decidedly below normal, and in such cases we often learn that the patient notes an irregularity in the pulse on exertion. The irregularity is most apt to appear before or during a paroxysm of pain.

It has not seemed advisable to attempt to give any description of the paroxysm, in its many variations; but all types of vasomotor disturbance, with dyspnea, pallor and perspiration, are present in all gradations, according to the intensity of the paroxysm.

GENERAL MANAGEMENT

The management of a case of angina pectoris is an important problem for general practitioners because each will some time have the responsibility. The psychology of every patient must be thoroughly understood. The individual who is apprehensive and easily alarmed must be dealt with in the most optimistic manner in order to dissipate fear and worry. Many times it is essential not to use the term angina to a patient, calling it instead a disease of the aorta that nearly everyone has after the age of fifty. Optimism with all patients is very essential. Hope must be maintained.

Exercise: Base the kind and the amount of exercise on the length of history and the occurrence of dyspnea and on the patient's apparent capacity to move about without the production of pain. Insist that they rest a certain period after meals and that whenever they start to walk or take any form of exercise it must be done slowly and gradually. One may progressively increase the effort permitted, provided the myocardium grows in capacity. Vigorous effort or emotional disturbance increases the rate and the vigor of the cardiac contractions, and the stretching of the aortic ring in all probability accounts for the occurrence of the pain. Myocardial fatigue may also be a factor.

In the severe cases, and especially after a very intense paroxysm, many persons are best treated by a period of complete rest, both physical and mental, with freedom from anxiety and worry. Long periods of rest have never in my experience proved sufficiently beneficial to warrant such a program for the angina alone. If theire is marked myocardial decompensation, then benefit is obtained. The daily routine for the average case should be nine or ten hours in bed at night, with periods of rest and relaxation during the day, particularly after meals, or after the usual duties of the day have been performed.

Diet: The diet must always be simple, and it should be varied according to the extent of the general arteriosclerosis, the renal involvement and the gastro-intestinal conditions. The patient who complains of a great deal of flatulence and is relieved by belching is best served by small meals and the avoidance of fluids of all kinds with meals. Repeated examinations of the gastric contents of this group of patients practically always revealed a normal gastric juice, so that the use of alkalies or acids is not ordinarily indicated. Carminatives may be of value in inducing belching.

The individual with renal disease or marked hypertension should have a low protein diet, basic in character, as outlined by Sansum[7] and Blatherwick. Fruits and other laxative foods should be taken freely in order to keep the bowels active, instead of using salines or purgatives. A low salt intake is in order in cases of renal involvement or marked arterial hypertension. A salt-free diet, however, in my experience has not been of any value excepting where there is edema.

PHYSIOTHERAPY

In nearly all cases mild hydrotherapeutic measures are of value. The purpose is to equalize the circulation, and special effort should be made to increase the circulation of

the skin, thus relieving internal congestion and somewhat lightening the work of the heart. In many cases this must be undertaken slowly, beginning with dry friction to the skin, later using cold towel rubs, and finally salt rubs and graduated showers or pail pours. Definite instructions must be given regarding the temperature of the water. Very often the shock of the cold can be counteracted by the use of a hot foot bath or fomentations over the abdomen before the cold application. The neutral, the Nauheim, or the simple saline baths have their place when given at proper temperatures and for the right length of time. The object is to equalize the circulation in the extremities. Very often great benefit is derived from the relaxing effect on the nervous system.

In the case of hypertension with renal involvement, sweating procedures may be employed if used progressively. I have often been surprised to find how well many of these patients will tolerate the electric light bath followed by graduated showers, without the production of a paroxysm.

Electrotherapy also has its place, diathermy or autocondensation being a source of great benefit. It tends to relax the patient and often lowers the blood pressure, thus relieving the burden on the heart. Massage is valuable, especially in cases where rest is the chief form of therapy. It is often necessary to begin with massage to the extremities only, carefully increasing it in vigor from time to time. Heavy massage to the abdomen should always be avoided in angina pectoris and in cases of marked arterial hypertension.

MEDICINAL TREATMENT

The object of medicinal treatment is, first, to relieve the spasm when the paroxysm is present; and, second, to improve myocardial inefficiency, and if possible to decrease the aortitis and the involvement of the coronaries. For the paroxysms, the nitrites practically always give relief. Amylnitrite is used by some, nitroglycerin by others. Nitroglycerin, as a rule, is more practical because a definite dose can be given and the relief is usually immediate. I have found 1/150 to 1/200 grain to be sufficient in a large proportion of cases. It is important that the patient be instructed simply to place the tablet under the tongue and not to attempt to swallow it or take water with it. The dose can be repeated in a few minutes if the first has not given relief. We can also advise the patient to take a tablet when about to do something which will probably induce an attack of pain.

Some recommend the use of antispasmodics, as benzol benzoate or its derivatives, while the daily use of atropin is advocated by others. Diuretin has been advised, with the idea that it improves the circulation in the coronaries. Five or more grains in capsules, three or four times a day, sometimes prove beneficial. In cases of myocardial inefficiency where there is shortness of breath or edema the use of digitalis is productive of the greatest relief. In fact, it is safe to give digitalis in nearly every case of angina pectoris, provided moderate doses are used; and my experience has shown it to be the most satisfactory remedy for reducing the frequency of attacks and relieving patients of the symptoms of failing compensation. In nervous or apprehensive individuals the use of hypnotics must be considered. In cases of insomnia or restless sleep, the moderate use of bromides, or broken doses of veronal, will often induce sound sleep and be of great benefit to the patient. In cases where syphilis is a factor, iodides, mercury and salvarsan should be used, depending somewhat on the symptoms of the case. In the advanced cases, salvarsan should be used with extreme caution and initial dose should be not more than one-tenth or two-tenths of a gram. If the iodides are used, they should be given in fairly vigorous doses over a long period of time.

SURGICAL TREATMENT

We have reached the point where surgical treatment of angina pectoris

is to be considered. Jonnesco[6] is the pioneer, and if this form of treatment proves satisfactory his name should be famous for it alone. Coffy and Brown[9], of San Francisco, and Holmes and Shackleton, of Chicago, are the pioneers in this country. Eppinger, in Wenckebach's clinic, has also treated cases surgically.

The severing of the superior sympathetic ganglion on the left side is the operation of Coffy and Brown[9], Holmes and Shackleton. Others certainly will try this form of treatment and the reason for being optimistic as to the outcome is the fact that practically every patient who has been operated upon has been relieved of the angina pains. The last report of Jonnesco[8] was that in his first case relief has continued over a period of five years. Every practitioner should watch with keen interest the development of a technic which will make generally available an efficient surgical treatment of a disease so widespread and important as angina pectoris.

SUMMARY

1. Angina pectoris is of such frequent incidence that it of necessity becomes the problem of each general practitioner.

2. Two theories as to the cause of the disease are now considered; first, the disease is aortic in origin and involves mainly the beginning of the aorta; second, the pain is myocardial, due to an insufficiency of the heart muscle and relative ischemia because of disease of the coronaries.

3. Arteriosclerosis is the principal etiological factor. Both acute and chronic infections are important causes, while anything that induces excessive cardiac labor may contribute to arterial degeneration.

4. The essential pathologic features are the degenerative changes in the ascending portion of the aorta and in the coronaries. Associated with these are nearly always evidences of chronic myocarditis.

5. Symptoms of angina pectoris may appear suddenly or be a gradual development.

6. The most likely explanation of the pain is that the nerve fibers involved (the cardio-aortic plexus) are sensory in type.

7. Study of the blood pressure and the myocardial inefficiency is most important.

8. Exercise should be limited and rest periods frequent.

9. A simple diet is demanded, varied according to general arteriosclerosis-renal involvement and gastro-intestinal conditions.

10. Physiotherapy, including hydrotherapy and electrotherapy, is a useful remedial agent.

11. Medicinal treatment should seek to relieve the paroxysms, improve myocardial inefficiency and decrease the aortitis. The nitrites, particularly nitroglycerin, are to be used for relief of the paroxysms. Benzol benzoate or its derivatives, atropin, or digitalis, may frequently be employed, and in some cases hypnotics are also indicated. Iodides, mercury and salvarsan, are to be considered in the syphilitic cases of angina.

12. Surgery has been tried in a few cases and the outlook for its successful application to angina pectoris is good.

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ROENTGENOLOGICAL SYNOPSIS OF PULMONARY TUBERCULOSIS WITH SPECIAL REFERENCE TO THE DIAGNOSIS OF CAVITATION*

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The chief value of roentgenology in pulmonary tuberculosis is prognostic rather than diagnostic. Not that the science of roentgenology lacks great diagnostic value, but in this respect it ranks second. We hope to show further on that there are non-tuberculous lesions which may cast shadows similar to those that are truly tuberculous, and because of this and other reasons of only less importance the closest co-operation between the clinician and the roentgenologist is terefore imperative.

Years of closest scrutiny in the field of pulmonary tuberculosis has taught us to believe that roentgen signs in pulmonary tuberculosis appear at times much before physical signs make their appearance, and much after the constitutional behavior of the patient has directed the eye of the clinician towards tuberculosis. To prove these facts, and to deprive our opinion of a personal character, we invite the attention of our colleagues to the well known and generally accepted fact, that roentgenology will invariably show a more extensive lesion than physical signs, for the reason that lesions not yet giving rise to physical signs cast shadows upon the film. And, if this is true of a well established process, why is it not equally true in early lesions? Times we have been approached by keen specialists with the following words: "This patient has tuberculosis; find the lesion". The constitutional symptoms have told the clinician of the tuberculous nature of the case, but the roentgen signs were to him a necessity for the completion of his diagnosis.

Recently a case came under our observation. A young woman with many of the constitutional symptoms of tuberculosis, who had been pronounced tuberculous three years before. At that time physical signs, sputum and x-ray examination were negative. Further x-ray research at this time warranted the diagnosis of chronic cholecystitis and duodenal ulcers. This was confirmed by laparotomy.

Recently Dunham has called attention to the similarity of the constitutional symptoms between sinus infection and tuberculosis.

Activity cannot be diagnosed by the x-ray, neither can the physical signs be relied upon always. One of New Mexico's foremost specialists has been a sufferer from tuberculosis for twenty-five years. He tells us that he has not had a single symptom for the past fifteen years, yet the physical signs are there to bespeak the lesion. How then are the roentgenologist and the clinician to proceed in dealing with tuberculosis? Are they to ignore constitutional symptoms because they are concomitant with other conditions, or physical findings because at times they are absent or persistent, or x-ray studies because their shadows are not characteristic? The clinician and the x-rayist should never disagree; not, if they set aside personalism, and with the interest of the patient at heart, analyze coolly and conscientiously the information at hand. Thus only can they safely travel through the still dark fields of tuberculosis.

If the exactness of the size of a pulmonary lesion, its accurate location, the true condition of the pulmonary parenchyma and the pleura, the degree of pulmonary function in reference to the degree and the character of the infection, the presence of excavation, etc., could be determined in a true fashion by physical examination alone, the science of roentgenology, in so far as pulmonary tuberculosis is concerned, would be dealt a severe blow, for here is where the x-ray examination shines with unique

(*Read before the El Paso County Medical Society, El Paso, Texas.)

brilliancy. Very early, as well as very old lesions, may give indefinite physical signs, yet both are of greatest concern to the clinician; the former in establishing a diagnosis, the latter in determining the extent of the pulmonary involvement and the amount of individual resistance. In advanced tuberculosis, the clinician is surely remiss if he fails to avail himself of the aid of roentgenology. In cavitation, for instance, there is no marked variation in the physical signs from the moment excavation is established until healing takes place and the cavity is walled off. How, then, is he to arrive at prognostic criteria? The same holds true of other phases of pulmonary tuberculous pathology. Again, can he, the clinician, determine by physical examination and in an accurate manner the amount and kind of fibroid proliferation and the stage of the healing process?

A combined skiagraphic and fluoroscopic study is a necessity in certain types of cases, for the study of shadows alone will not determine how the lungs are performing their mechanical and physiological task. Whether or not the diaphragmatic excursion is within normal limits; the extent and the cause of limited pulmonary excursion; the influence that extensive changes in the mesial pleura or marked fibrosis along the descending bronchial trunks may have in circulatory disturbance; and if displacement and even distortion of a thoracic organ is momentary or permanent.

There is no subject that has taken the time, or has occupied the minds of those of us who have chosen roentgenology as our specialty more than the subject of pulmonary pathology, because the shadows cast upon the x-ray film by pulmonary changes are the most difficult to interpret. In order fully to comprehend the meaning of the different shadows, the physician should be well acquainted, first, with the degree of x-ray absorption of a given tissue; second, with the pathological changes possible in the organ to be examined; and last, but not least, with the anatomy and physiology of the organs shown on the skiagram. Gas, fat, muscles, fibroid tissue, bones and fluid, all have different degrees of power of x-ray absorption, according to their atomic weights, gas the least, fluid the most, so that if we could take different layers of equal thickness of the above mentioned elements and an equal x-ray exposure be given, the x-ray plate would reveal a gradual increase in density from the gas to the fluid.

There is no such thing as a typical normal chest radiogram. The normality, however, can be established at the moment a plate is studied, always taking into consideration the age, occupation, degree of chest muscular development and previous pulmonary diseases of the patient. Let us not forget previous pulmonary diseases! Once that the normal shadows have been observed and their meaning understood, then one can conceive the variations from a physiological into a pathological state. No matter what pathological condition we may choose, it is impossible to give an equal description of the same in all cases, for the reason that no two lesions are, histopathologically speaking, alike. Hence, they necessarily cast upon the skiagram different shadows. We will, then, discuss this matter step by step, studying the pathology of pulmonary tuberculosis in its different phases and stages in conjunction with the shadows cast by them in the roentgenograms.

The reading of chest conditions by means of flat plates is a past performance. Flat plates should be used only when and where stereoscopic plates are not feasible. Stereoscopic plates have the great advantage that they indicate the location and the depth of the pulmonary lesion. They will also differentiate between pleural, pulmonary or extrapulmonary conditions. In tuberculosis, especially, they resolve the shadows into their components and thus give a truer idea of the density of the infiltration, and finally, in the average case, they furnish the clue for the roentgenologist to inform the clinician

of the relation between the thoracic wall and a given lesion.

Although pathologists seem to be in full accord as to the pathological changes which take place in pulmonary tuberculosis, there is a lack of unanimity in the classification of the different types. Some will classify the disease according to the supposed mode of infection, while others will base their classification upon the pathological course of the lesion. We feel that in the interpretation of x-ray findings it matters not in which way the organism enters the tissues. So, for the purpose of x-ray study, we will divide pulmonary tuberculosis into four main types: Miliary, chronic ulcerative, chronic fibroid and glandular.

MILIARY TUBERCULOSIS

Once a pathological specimen of this type of pulmonary tuberculosis is studied, there will remain in our minds always the vivid picture of those small grayish, translucent areas, representing the miliary tubercles imbedded in the perivascular connective tissue, scattered in myriads throughout the lung substance. They are to be distinguished from the characteristic conglomeration of tubercles seen elsewhere, not alone by their minute size, but by their irregular configuration. When a fresh cut is made in a miliary lung and the tissues gently squeezed, a certain amount of exudation of a semi-solid consistency is seen oozing out from the margin of the tubercles. What may we expect the x-ray to show? What is there to intercept, to absorb, the rays in addition to the bony structure and the mediastinal organs, the heart included? Only the normal structure of the lungs made up mainly of connective tissue, bronchi and blood vessels, plus the miliary tubercles. Hence, a radiogram in these cases will show numerous minute areas of radiopacity, varying in size and shape, and of a somewhat irregular outline, scattered in between the radiolucent linear markings of the bronchial tree, evenly and symmetrically distributed throughout the fields reaching or not reaching the periphery. In these cases, the pleura is uniformly inflamed, congested, engorged, so that it absorbs evenly throughout both fields a certain amount of radiation and gives to the radiogram a peculiar blurredness similar to that seen in a photographic film when the object photographed moves slightly. This peculiar blurredness constitutes the only roentgen signs that will aid in the differential diagnosis of a miliary pulmonary infection and cases of pneumosiderosis, which likewise show numerous small areas of hyperdensity disseminated throughout the lung parenchyma. In miliary tuberculosis, the costo-phrenic angles are occluded, not by adhesions, but because of the incomplete excursion of the diaphragm, the result of reduced expansion of the lungs.

CHRONIC ULCERATIVE TUBERCULOSIS

The primary lesion consists of scattered tubercles surrounded by a pneumonic exudation in a congested area. In other words, and grossly speaking, we have an area where fluid is accumulated in the tissues. This collection of fluid will intercept radiation and the infiltrated area will cast upon the film shadows of various sizes and densities, depending upon the quantity and physical qualities of the fluid. As the disease advances and caseation takes place, the shadows coalesce and consolidation over small areas is revealed upon the skiagram by radiopaque shadows more or less spherical in shape within a radiolucent area of marked infiltration. Later, either through the blood or the lymphathic channels or else by the discharge of caseous material into the contiguous bronchi and its aspiration into other parts of the lungs, unless the case is non-progressive, the infection is bound to invade the opposite side and the adjoining lobes, and we then see in the gross pathological specimen, in addition to the inflammatory area previously described, numerous isolated tubercles in the adjoining lung parenchyma. When these tubercles are of recent origin, they cast upon the skiagram

soft, faintly radiolucent shadows of blurred, indefinite outline, the last feature being due to a layer of pneumonic exudate surrounding each tubercle. On the other hand, when the tubercles are of long duration, they reveal themselves upon the film as rounded, cleancut, radiopaque shadows; they are no longer surrounded by an area of exudation and their structure contains a certain amount of calcium salts. It is well to emphasize that the correct estimation of the

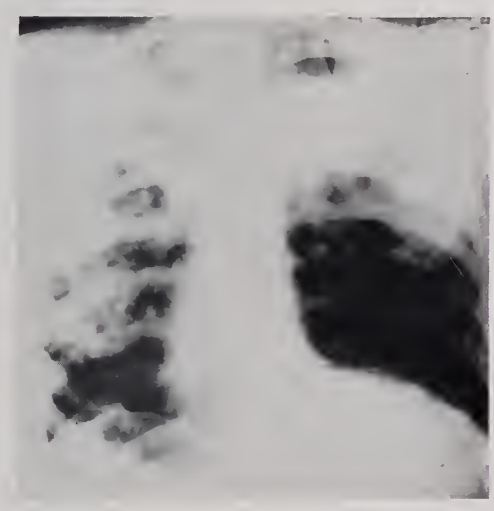


Fig. 1. Extensive infiltration involving all lobes left lung and upper and middle right, with collapse of right upper and pleurisy with effusion at the lesser fissure. Notice flat fluid level. Scattered areas of rarefaction at the central portion of both fields are indicative of softening and disintegration of the lung tissue with multiple cavitation. Confirmed by autopsy

shadow cast by the tubercle will have an important bearing on the prognostic side of the question.

After the process of infiltration is well established, when the physiological functions are being lost, when there is no longer gaseous alveolar interchange, when there is hindrance to the capillary circulation and there is likelihood of exudative decomposition, breaking down of the lung tissue begins to take place, and the skiagram shows areas of radioparency, irregular in conformation, and usually in the midst of radiopaque zones. This softening and disintegration has been observed by us only in cases far advanced. If, at this stage, reparative changes take place in the form of connective tissue cell proliferation, the areas of radioparency are supplanted by areas of radiopacity which show themselves upon the film in the form of irregularly shaped shadows with little, if any, lung markings, characteristic of diffused fibrosis. If, however, the ulcerative process proceeds, it will eventually lead to a most characteristic lesion of a tuberculous lung, viz., cavity.

THE CAVITY

The roentgen diagnosis of pulmonary cavitation of tuberculous origin may be at times confusing and rarely impossible. Speaking from the standpoint of the roentgenologist, the liter-



Fig. 2. Extensive involvement of all lobes, right side, with well walled off cavity at the lower portion of the upper lobe. Notice the haziness and undefined outline of the internal border by the shadow cast by the capsule. Autopsy findings revealed cavity somewhat triangular in shape and measuring about 5 c.m. from apex to base, surrounded by a zone of indurated lung parenchyma, where the external border of the capsule was lost. There was no fluid present, the even haziness cast upon the plate being due to the rays having been intercepted by the indurated lung tissue anterior and posterior to the cavity. Two small, acute cavities triangular in shape, at a level with sixth interspace behind. Breaking down of the parenchyma at a level with the eighth behind. Confirmed by autopsy.

ature on this subject does not seem to be, generally speaking, based on autopsy findings to the extent that we would like, and which we have found to be of absolute necessity in the proper interpretation of roentgen shadows cast by pulmonary cavitation, inasmuch as other conditions give physical signs similar to those elicited by parenchymal excavations.

For diagnostic purposes we will speak of pulmonary cavitation as acute and chronic. The acute runs a parallel course to, and is concomitant with, an active destructive process.

If we bear in mind the histological elements that enter into the composition of the lung parenchyma, their distribution and the pathological changes that take place in tuberculous parenchymatous pulmonary in-



Fig. 3. Extensive infiltration involving the left lung and right upper with moderate infiltration of the middle. Irregular areas of rarefaction at the lower portion of the left upper proved to be at autopsy multiple cavities. Notice large "punched out" area at level with eighth rib behind. Roentgen diagnosis: Cavity. Confirmed by autopsy.

fection, the following facts must be taken into consideration in dealing with the study of acute cavitation:

1. That they are improbable in the absence of an extensive involvement.

2. That their shape is triangular, or quasi triangular.

3. That their outline must be irregular.

4. That they show no evidence of capsule.

Cavities are the result of disintegration which is brought about by the pressure of retained secretions within softened portions of the infected lung parenchyma or by liquefaction of caseous areas not in connection with the larger bronchial trunks. Disin-



Fig. 4. Old infiltration involving the right, upper and middle lobes. Autopsy findings: Induration of upper lobe with cavity formation. Extensive fibrosis.

tegration, therefore, cannot occur in early parenchymatous infiltration. Hence, acute cavitation is not to be expected unless the infection is well established.

As to their shape, let us bear in mind the normal distribution of the pulmonary stroma. The tissues that enter into its composition originate in the hilar region, whence they radiate in all directions into the parenchyma in a fan-like manner, forming pyramidal tracings, with the base towards the surface. They surround areas of parenchymatous tissue composed of lobules closely connected to one another by the interlobular areolar tissue. It is an accepted fact that the stromal tissues resist ulceration more than the neighboring parenchyma, therefore, following their histological distribution, acute cavities assume a

pyramidal shape, their internal border being ragged and irregular because of the asymmetry in the course of the destructive process. What we term acute cavities do not show evidence of encapsulation for the reason that they pertain to that type of cases where reparative changes have not taken place. When cavitation takes place, as the result of pressure of retained secretions within disintegrated and softened portions, we see, in serial roentgenograms, a change in the density of the shadow from radiolucency to radiopacity, due to the gradually increasing secretions absorbing the rays. In a majority of the cases the radiopacity changes to radiolucency just as soon as a communication is established between the cavity and the neighboring bronchi, and drainage takes place, because, then, there is no fluid to intercept radiation. If, however, pulmonary cavitation is the result of liquefaction of caseous material, no change in the shadow will take place while the process of cavity formation is going on, because caseated material intercepts radiation at the same rate that secretions do, and unless drainage takes place, a cavity within a caseated area may be overlooked. Once drainage is established, however, an area of radiolucency corresponding to the approximate size of the cavity will be in evidence.



Fig. 5. Extensive fibroid degeneration involving right upper. Physical signs consistent with large cavity. Autopsy findings showed several very small cavities at the upper and diffused infiltration at the middle and lower lobes. The patient died of acute peritonitis of postoperative origin.

A few years ago, and even in the present day, some of our leading authors in pulmonary tuberculosis put forward the assertion that cavities are represented upon the film by areas of radioparency containing no lung markings. For obvious reasons, this is not the case. Acute cavities almost invariably, unless, as it rarely happens, situated in the very periphery, are enveloped by pulmonary tissue which will intercept radiation, not only casting shadows representing lung markings, but also preventing the feature of radioparency.

CHRONIC CAVITIES

We speak of chronic cavities when the process of repair is well advanced and a distinct fibroid wall has been formed around the cavitation. These cavities preserve their original shape, or, at least, have a tendency to triangulation, unless they are of very long standing and are surrounded by a more or less extensive area of induration. Then they attain a circular



Fig. 6. Typical annular shadow, the result of thickened pleura. Notice the size of the ring, which is out of proportion to the amount of infiltration, the cleancut internal border, and the clearness of the enclosed field. No cavity found at autopsy.

shape due to shrinkage of the neighboring tissue. The capsule is represented upon the skiagram by a dense ring-like shadow of varying thickness, having either a well defined or a blurred but rough, ragged, uneven internal border enveloping a radiolucent area. This area may or may not contain lung markings, depending entirely upon the position of the cavity, the thickness of the capsule and the solidity of the surrounding lung tissue. When a cavity is situated deep in the center of the parenchyma, the capsule is thin and the surrounding lung tissue is not indurated, lung markings anterior and posterior to the cavity will cast their shadow within the area of excavation. Per contra, when the capsule is heavy, whether or not the adjoining lung tissue is indurated and regardless of where the cavity is situated, lung markings will not be in evidence, the excavation being covered by a heavy blurred veil of even density and uniform haziness, similar to those shad-



Fig. 7. Two typical annular shadows on the left. Notice in between, pleural shadow with a tendency to annular formation, showing a flat fluid level. Physical signs positive of cavity corresponding to a zone occupied by the superior shadow. Autopsy findings show that physical signs were the result of pleural changes with subsequent cupping of the lung tissue. The middle shadow proved to be a localized pleurisy with effusion, with moderate cupping of the lung parenchyma. (Localized pneumothorax). The inferior shadow was found to be due to annular pleural changes. Notice the infiltration, out of proportion for the size of the annular shadows. On the uppermost portion of the right lower lobe, two small cavities were found. They gave no physical signs, but were diagnosed as such by the x-ray.

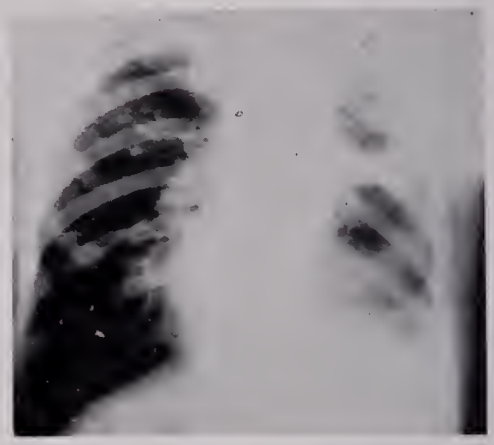


Fig. 8. Fibrinous pleurisy throughout the right pleura, with a tendency to circular formation. Notice the sharpness of the internal border in the circular shadow. Intra-lobular pleurisy with effusion at the lesser fissure. The autopsy findings verified the x-ray findings and showed extensive parenchymatous infiltration, with no cavity formation.

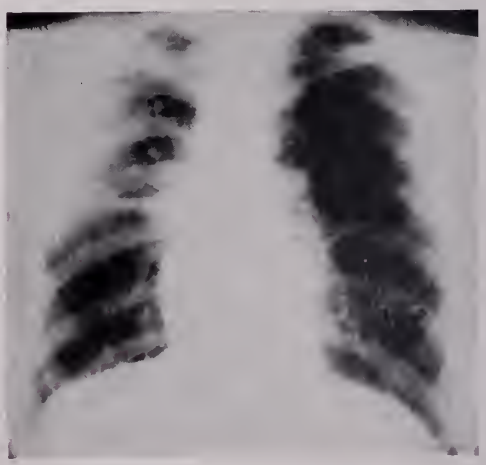


Fig. 9. Well established tuberculous infiltration of all lobes, right side, with pleural changes in annular formation projecting from the hilar region. Autopsy findings showed thickening of mesial pleura and confirmed x-ray findings.

ows cast by markedly thickened pleura, the rays having been absorbed in direct proportion to the thickness and the degree of absorption of the tissue anterior and posterior to the cavity.

DIFFERENTIAL DIAGNOSIS

Four different types of shadows are to be dealt with in the differential diagnosis of tuberculous parenchymal excavation:

1. Those pertaining to true cavities.

2. Those cast by thickened pleura in annular formation.

3. Those cast by localized spontaneous pneumothorax.

4. Those cast by annular shadows of fibroid origin.

Location: Autopsy findings have taught us to believe that cavities, in so far as location is concerned, follow the same lines as an invading tuberculous infection, i. e., they are most commonly found in the uppers, usually just below the clavicle close to the periphery, sometimes at the apex, and seldom at the lower portion of the upper. Cases have been reported with tuberculous cavities at the bases. We have never seen this condition. Pleural shadows may occur anywhere in the field, most commonly posteriorly at or near the central portion. Occasionally, when they are of intralobar origin, they are visualized in the midst of the lung parenchyma; at times they are seen directly behind the front ribs. The type of spontaneous pneumothorax that may be mistaken for cavity is always situated at the apex, unless it accompanies the pleural annular shadows with cupping of the encircled lung tissue when it may occur anywhere, but usually in the central portion of the field close to the posterior surface. Fibroid changes in circular formation are invariably seen originating from the hilar region and are, therefore, in the center of the field, and may travel either forward or backward, sometimes upward and rarely downward.

Shadow Characteristics: The size of a pulmonary excavation varies, but is always in direct proportion to the nature and the extension of the lesion. In those cases following a caseating course from the beginning, cavities usually attain enormous sizes, while in those cases where fibroid proliferation starts early, cavities are small and commonly multiple. Annular shadows of pleural origin may be of any size regardless of the degree of involvement. We have seen pleural shadows that were the only unmistakable evidence of the true nature of the accompanying constitutional condition, the remainder of the field being comparatively clear, showing only scattered shadows to awaken suspicion concerning their real cause. Fibroid shadows in annular formation are to be expected and are met with as a rule in cases of true fibroid phthisis, although, at times, they are seen in the ulcerative type when fibroid changes follow, step by step, the parenchymal infiltration. They are usually small and are seen connected by a stem to the hilar region whence they originate. Spontaneous pneumothoraces of apical origin usually involve the whole of the apex. When associated with pleuritic annular shadows, their size varies considerably. Acute cavities, being deprived of a capsule, or, at least, of a complete capsule, when situated at the very apex, cast a shadow that may be mistaken only with the shadow cast by a spontaneous pneumothorax; in the latter, however, the edge of the collapsed lung can often be made out, and the shadow is one of radioparency containing no lung markings. When acute cavities occur elsewhere, they present a "punched-out" area of radiolucency showing lung markings, of triangular or almost triangular shape, and of irregular, ragged, ribbed outline. There is, to our knowledge, no other pathological entity casting a similar shadow. Chronic cavities, however, no matter where situated, must be differentiated from annular pleural shadows and fibroid ring-like shadows. We have already discussed the nature of the shadow cast by this type of cavity, which is

quite in contrast to those cast by pleural changes in annular formation. Annular pleural shadows have a cleancut, even, smooth internal border much different from the external one, which has a blurred and undefined appearance, the dense shadow gradually fading out as it travels outward away from its axis. On several occasions we have diagnosed triangular shadows showing the above characteristics as of pleural origin, autopsy findings confirming our belief.

Many creditable articles discussing this most deserving subject have appeared recently, and it is astonishing to see groups of men of equally extensive experience holding directly opposite views, all the result of their experience, backed by the force of a well established professional reputation. Between them, with the same force, stand Amberson of the Loomis Sanitarium and J. A. Honeij, with equally feasible ideas as to the pathological significance of pleural changes in annular formation.

We could agree with the recent statement, "pneumothoraces are never annular in contour", if we may add, when accompanied by pleural changes. Hard knocks and disappointments have taught us to believe in the existence of annular areas of thickened pleura with subsequent cupping of the encircled lung parenchyma. Autopsy findings have placed our error in the limelight by revealing annular pleural changes where findings of a cavity had been foretold because of the leading physical signs and because of what we considered positive x-ray findings. It was true that in the process of separating the adhesions between the parietal and the visceral pleura, much of the structural appearance was destroyed, but there was oftentimes sufficient pathological evidence at hand to prove the existing conditions. On inflation of the lung, a well pronounced umbilication of the parenchyma was observed at the site of the lesion, before inflation was completed, this portion being the last to attain full expansion. After the lungs were properly expanded, they were submerged in water, and in only one case there seemed to be a few air bubbles that did not come up to the water surface, showing that if there were any air leakage, it was almost osmotic in character. This naturally might have been the result of traumatism during the dissecting procedure. The postmortem work performed by us has failed to confirm the theory of ruptured lung as causative of pneumothoraces simulating cavities. Every case of ruptured lung that has come under our observation has been accompanied by an extensive pneumothorax with partial or complete collapse of all lobes of the affected side. When shadows cast by pulmonary excavations, pleural changes, spontaneous pneumothoraces or ring-like fibroid degeneration show the characteristics above described, we have had little difficulty in differentiating them. However, there are a large percentage of cases where a complicating feature may disturb the typical appearance of these conditions as revealed upon the films and make it quite impossible to arrive at definite conclusions. Then we call fluoroscopy to our aid. When a shadow is being cast by a cavity, it is obvious that the excursion of the chest wall in the neighborhood of the area being studied is considerably impaired, but not altogether absent; in true pneumothorax, there being a collapsed portion of the lung, chest movements are absent, while in cases of annular pleura, there is a peculiar lagging at the involved zone which interferes somewhat with the normal expansion. When a shadow is being cast by fibroid changes, there is no appreciable change in the thoracic movement.

Autopsy evidence leads us to support Amberson's hypothesis, "that in a large majority of instances, so-called roentgenographic pleural annular shadows accompanying pulmonary tuberculosis do not represent localized pneumothoraces secondary to lung rupture, but indicate rather the presence of simple chronic or sub-

acute localized pleurisy with or without localized retraction and separation of the pleural layers". We also believe that "these shadows develop and enlarge as accompaniments of intrapulmonary tuberculosis that is usually active or progressive". Equally we endorse Dr. Honeij in his statement that pleural shadows have no relation to the extent of a pulmonary infiltration or softening and breaking down of tissue, as this is in accord with our contention that cavities are not to be expected in the absence of a well established tuberculous involvment.

Judging from our personal observation, we cannot endorse the teachings recently put forward to "consider all annular shadows as cavities until diligent investigation proves that they are to be better interpreted some other way". Why not consider them as of pleural origin in the absence of leading roentgen and physical signs of cavity? Are we to set aside the normal histology of the lung parenchyma and its logical relation to the formation of pulmonary tuberculosis excavation? Has it not been proven by serial roentgenograms that annular pleural shadows behave very differently from those of cavities? Do they not in the majority of cases disappear, leaving no trace, sometimes in a surprisingly short period of time? In one of our cases, a well developed pleural shadow which had revealed itself in serial stereograms for nearly a year disappeared in three weeks. Cavities, as we have already stated, once developed, are there to stay even though we readily admit that their size and shape may be altered during the process of repair. The acute cavity following a pulmonary abscess may heal and disappear, leaving no trace on the skiagram, but one must remember that in these cases, cavities are a consequence of inflammatory changes, and do not develop wholly at the expense of softening and true destruction of the parenchymal structure. Then, too, an acute abscess cavity once surgically drained has healthy lung tissue surrounding it ever ready to be of material aid in the process of repair. The greatest percentage of those that drain through natural channels become chronic, develop a heavy capsule and are never cured because the capsule prevents the approximation of the cavity walls, and therefore, no complete restoration is possible. Can the same be said of a tuberculous cavity? If acute, it is in contact with pathalogical tissue; if chronic, it is well walled off by a strong fibroid capsule.

The presence of fluid within an annular shadow constitutes no pathognomonic sign of pulmonary cavity; we, like Amberson and others, have drawn fluid from localized pleurisies in annular formation and have seen the pleuritic process disappear in a comparatively short time.

Artificial pneumothorax helps considerably in the diagnosis of doubtful cases of cavitation. In the presence of induced pneumothoraces, annular shadows of pleuritic origin either disappear or else, when they are of long duration and extensive adhesions have formed binding the parietal and the visceral pleuras, adhesive bands are seen strung from the visceral to the parietal layer crossing the pneumothoracic field. Cavities, on the other hand, change in position following the collapsed lung in its displacement and become distorted in appearance. When acute, they may so obliterate as to be scarcely discernible. When cavities occur close to the periphery at the mesial side of the lung, they may be so overshadowed by the median structures as not to be discernible at all. In several cases, artificial pneumothorax has revealed, by displacement and collapse of the lung tissue, cavities that had not even been suspected.

Chronic ulcerative tuberculosis may become arrested even in the unbelievably advanced cases, the gross lesion undergoing healing by fibroid proliferation and tubercle calcification. This condition is shown upon the film by the radiopaque, mottled shadows of cleancut borders already

spoken of and the irregular shadows representing the diffused fibrosis.

FIBROID PHTHISIS

Fibroid phthisis is characterized, from a pathological point of view, by an early fibroid degeneration concomitant with and following closely the infection of the organ; so that, in the early stages of the disease, the infected areas are surrounded by a capsule of fibrotic tissue, which, acting as a wall, separates the diseased portion from the neighboring healthy lung tissue. This capsule contracts and shrinks, and the infected material, sometimes caseated, within it, has a tendency to early calcification or else the tuberculous infection may be more or less generalized and consists of minute foci scattered throughout both lungs. Also, the fibroid tissue may interpose the minute foci so that both lungs may show a considerable amount of sclerotic tissue in the form of wide fibrous bands extending from the hilus through the organ to the periphery, causing occasionally true deformity of the thoracic contents. Fibroid tuberculosis is shown upon the film either by linear markings in reticular formation encircling, here and there, irregular areas of hyperdensity, early of caseative, later of calcific origin or else by heavy, dense, ribbon-like linear markings radiating from the hilus into the periphery. Ever so often, cases of fibroid phthisis are seen exhibiting all the changes described.

GLANDULAR OR HILUS TUBERCULOSIS

This is the only type of tuberculosis in the adult's chest where the aid of roentgenology has a diagnostic value, for no other disease will even simulate the shadow characteristics of the hilar structures as revealed upon the roentgenograms. We are at a loss insofar as the true patholoy of these cases is concerned, having no autopsy data to illuminate our path, but we assume that the changes are identical with those that take place in tuberculous lymphatic glands elsewhere.

For reasons that are not within our scope to explain, the constitutional symptoms in hilus tuberculosis of the adult stand out earlier and with much more intensity than in any other type of the disease; so that the clinician, in spite of lacking corroborative physical data, is more than suspicious that the patient is suffering from tuberculosis. The disease in adults has a tendency to early breaking down of the glandular structure. This does not usually cast upon the film abnormally enlarged shadows, there being but little swelling. There is an almost pathognomonic unevenness of the density of the shadow, having undefined areas of radioparency intermingled with areas of radiopacity so that the appearance is similar to the shadow cast by the breaking down of the lung tissue within a caseative zone. The sharp, well defined margins of a normal hilus are lacking, the shadow fading gradually from its center so that its borders are blurred and undefined. Traveling in all directions into the parenchyma, which has a normal appearance, short, heavy, blurred trunks are seen originating from the margins of the hilus and losing their density from within outward. They are probably being cast by infected lymph channels. In the majority of cases, in an incredibly short period of time, the disease becomes parenchymatous, physical signs make their appearance and the skiagram shows distinct mottled shadows, which spread out from the central portion towards the periphery. At this stage, a positive sputum is the rule. This is the class of cases of parenchymal infiltration in which the apices are the last portion of the organ to be involved. If the chymal involvement takes place, as it chymal involvment takes place, as it happens in a small percentage of cases, fibroid and calcific changes show themselves within the hilus, which casts a radiopaque shadow, irregular in configuration. The margins, although cleancut and well defined, have a ragged, irregular outline. The short, heavy, blurred trunks disappear, and the hilus structures stand out and form a decided con-

trast with the adjoining lung parenchyma.

We have observed these changes in the adult where the infection has invariably been more pronounced on one side. Our experience has shown that the disease behaves quite differently in children. It is equally bilateral and early swelling instead of breaking down of the structure is the rule. There is no tendency to early parenchymal involvement, and the constitutional symptoms are not as pronounced as in the adult. Then, too, in children, the roentgen signs cannot altogether be relied upon as having a tuberculous meaning, for other non-tuberculous conditions of the hilus may cast upon the skiagram similar shadows.

TUBERCULOUS PLEURISIES

We are reluctant to accept the theory that all chronic pleurisies are of tuberculous origin; scores of cases showing pleural changes upon the skiagram, accompanied by typical physical signs, have eventually disappeared, leaving no trace of either physical or roentgenological signs.

We have found that, contrary to what happens with parenchymal tuberculous infiltration, autopsy will invariably show a greater pleural involvement than roentgen shadows have demonstrated. Because pleuritic changes only cast shadows after they have attained considerable thickness. Much before this state has been reached, physical and constitutional symptoms have made their appearance so that negative x-ray findings should in no way interfere with the clinical diagnosis of this condition. We have learned that pleuritic complications are by far the rule in chronic pulmonary tuberculosis of the ulcerative type. When shadows representing pleural changes appear upon the film, they may be of great importance to the clinician. We have already discussed the leading role played by the so-called annular shadows, how they interfere with the correct diagnosis of pulmonary excavation, and their relation to the acuteness of the case. Fibrinous pleurisy intercepts radiation at such a rate as to cast an evenly hazy shadow which increases in density in proportion to the thickness of the pleural layer. Adhesive pleural changes play a decisive part in the prognostic chain. When they are so situated as to interfere with the proper excursion of the diaphragm, or so envelop the parenchymal structure as to prevent normal lung expansion, they constitute an impassable obstacle in the road to recovery. When of mesial origin, they are also a menace to the patient and are the causative factor of grave circulatory disturbances. In one of our cases, the heart and the great vessels were literally "trapped" in a heavy veil of thickened pleura so that the cardiac condition was by far the main issue.

Effusion is readily recognized when in sufficient quantity and the mediastinal organs, free from adhesions, are displaced to the opposite side. The shadow cast gradually diminishes in density from within outwards. Obviously, due to the changes in the depth of the thoracic vault, the fluid layer becomes thinner as it travels towards the periphery. The character of the fluid may increase the density of the shadow, but does not seem to interfere with the variation in density from within outwards. However, when the fluid is encapsulated, it must necessarily be accompanied by extensive pleural changes, and then the median organs are but little disturbed in their position, and the shadow is equally dense in all directions. Usually, the margins of the capsule are clearly discernible. In some cases, however, when the pleuritic changes extend beyond the capsule, the margins are lost by overshadowing. The study of fluid levels when present, either by radiography of the patient in varying positions or by fluoroscopy is of greatest value in doubtful cases. Physical signs cannot always be depended upon in the diagnosis of intrathoracic fluid. When the effusion is of considerable size, the extreme pressure of the fluid makes it act as a solid conductive agent, so

that signs corresponding to those of consolidation may be elicited.

EMPYEMA

Empyema is the exception rather than the rule in pulmonary tuberculosis. The roentgenological signs are rather conclusive, although a simple effusion accompanied by extensive fibrinous changes in the parietal pleura may cast a similar shadow. This is always denser than the heart shadow and decreases in density from without inwards. We have seen autopsies in only three cases of tuberculous empyema and in all three cases the purulent exudate was within the visceral pleura. One of these cases was so advanced that the lung tissue had totally disappeared on the affected side, having been replaced by a pus containing sac, the walls of which (the visceral pleura) had the consistency and thickness of heavy leather, with rough internal and smooth, glistening external surface. The pleural space had a normal appearance.

We have found no literature on this subject and the question comes to our mind: Are all cases of tuberculous empyema intrapulmonary? Does the infection take place, like in pulmonary abscess, and because of the low resistance and softening of the tuberculous tissues, no defensive walls are formed? The issue deserves consideration. It may influence the clinician ah to the advisability of early surgical interference.

In conclusion we will sum up a few principles referring to x-ray diagnosis in its relation to pulmonary tuberculosis. A roentgenologist should not expect his findings to be taken as conclusive, but only to be incorporated in the clinical chart as corroborative or suggestive data. In the presence of inconclusive physical signs and suspicious history, shadows representing a pulmonary lesion should be given careful consideration and should be regarded as most likely to be of tuberculous origin. On the other hand, when the history and the physical findings are not inclined towards tuberculosis, other pathological entities likely to cause similar shadows should be investigated, for one must remember that parenchymatous gummatous pulmonary syphilis casts shadows quasi identical with those seen in caseative tuberculous bronchopneumonia, that pneumosiderosis resembles upon the skiagram miliary tuberculosis, and that cardiovascular conditions may bring about pulmonary congestion, in patches and unilateral, which match closely with the early lesions of parenchymal pulmonary tuberculosis.

Our experience tells us that an etiological opinion in cases of chest radiography should be given only in the presence of unmistakable x-ray signs. Abnormal densities in the parenchyma not involving the uppers may be of tuberculous nature, but no diagnosis of tuberculosis should be made until other conditions are excluded. It is the duty of the clinician and not of the roentgenologist to determine activity. This usually requires great skill and all of the laboratory aid that can be secured. Rales over a definitely mottled or blotted out area may indicate an active tuberculous lesion, but a search into the constitutional symptomatology is essential. On the other hand, rales, even after cough, over a limited area, with negative x-ray findings, do not always and necessarily indicate tuberculosis. Is it not true that similar findings may be met with in influenza, syphilis or heart lesion? Rales heard both on inspiration and expiration, whether at the bases or at the apices, without x-ray findings, indicate possible bronchitis or early edema; prolonged high pitched expiration with increased intensity or granular breathing, both with negative x-ray findings, have little significance, but, with positive x-ray findings, they have great significance. X-ray densities described beneath the scapula or under the shoulder should not be discarded in the absence of physical findings; one must remember that these areas are dead to the stethoscope.

Speaking in behalf of and for the

art of roentgenology, we feel not at all humiliated in emphatically stating that there are limitations to the diagnosis of pulmonary tuberculosis by means of the x-ray. The words contained in this synopsis, we hope, have proven our assertion that the closest co-operation between the clinician and the roentgenologist is imperative in the proper study of pulmonary tuberculosis. In the average case, one is a complement to the other. The wide awake, progressive clinician has come to the realization that the x-ray is, without question, the best agent at his command to follow up his case, and that the roentgenologist stands out as a reliable scientific partner doing his bit towards illuminating the obscure diagnostic road.

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THE DIAGNOSIS AND TREATMENT OF PEPTIC ULCER FROM A SURGICAL STANDPOINT*

WM. H. WOOLSTON, M. D., Albuquerque, New Mexico.

The subject of peptic ulcer has been a favorite one for the pen of the gastro-enterologist. Its treatment still seems to be a point of issue between the internist and the surgeon.

The diagnosis of ulcer of the stomach or duodenum has become much more accurate since the x-ray has given us a firmer foundation upon which to work. As my preceptor, Dr. Kanavel, expressed it, "In the diagnosis of this condition, in the final analysis, we might rate the history of the patient 50 percent, the x-ray findings 47 percent, and other laboratory methods 3 percent.

A carefully taken history is more important in the direct diagnosis of peptic ulcer than any other agent we have.

Localized epigastric pain, the one most important symptom, is characterized by its chronicity, intermittency and periodicity.

It is chronic in that it exists for months to years. Peptic ulcer is almost always chronic by the time it causes symptoms. Robertson of Rochester and numerous other pathologists have found healed gastric and duodenal ulcers during the course of autopsies on patients who had died of other causes and whose histories did not reveal stomach symptoms.

It is intermittent in that the symptoms last from a few weeks to six months and then disappear with or without medical treatment. This is followed by a period free from pain lasting from a few months to two years. The more advanced, or the more chronic the lesion becomes the shorter is this "free" interval.

It is periodical because the pain and distress appear with regularity, following meals from one-half to two hours, depending on the location of the ulcer.

These three characteristics are most constant. Other attributes of the pain are food and alkali relief. Epigastric pressure relieves it temporarily. It is a gnawing, burning pain, felt most frequently when the stomach is empty.

Other signs are localized tenderness, hematemesis, melena.

RADIOLOGY

Without the x-ray, unless one has a well established clean cut ulcer, the diagnosis as it depends on the symptomatology is quite likely to be inaccurate. As Sir Berkeley Moynihan, in reference to peptic ulcer, has written, "The radiographic method is, in expert hands, the one certain method of diagnosis and is nod an indispensable

(*Read at the Ninth Annual Session of the Medical and Surgical Association of the Southwest, at El Paso, Texas, Dec. 11-13, 1923.)

addition to the older and less accurate methods of inquiry."

By fluoroscopy we note the position and outline of the stomach and determine whether there are filling defects, spasms or sulci, and their characteristics; whether there is fixity or deformity of the bulb.

The most accurate roentgenographic method is by serial plates with the observation of the morphology of the stomach and persistent defects, such as niches, accessory pockets, incisura, craters, hour glass deformities, dimpling, diffuse spasm, and the residue after six hours.

The radiographic characteristics, as well as the various radiologic types of ulcer, we shall leave to the discussion of the roentgenologist. They include, for instance, penetrating, burrowing, large shallow, small round, and healed ulcers.

In addition to the above mentioned factors in the diagnosis, there is the fractional test meal, Dr. Einhorn's string test, blood in the stomach contents or stool.

In the differential diagnosis we may ask ourselves first whether the ulcer is gastric or duodenal, and here we have the time of appearance of the pain and the x-ray to help us out. Among other diseases of the stomach carcinoma is the most important. The mode of onset, the age of the patient, character of the pain, loss of weight, vomiting; late in its course the tumor mass, exploratory operation, and last but not least the x-ray, are the cardinal points in establishing this condition. An ulcer projects as an addition to the stomach while cancer encroaches upon the lumen of the stomach. Another condition within the stomach which may be confusing, though it is not common, is syphilis.

Among diseases of adjacent viscera leading to disturbances of gastric function is gallbladder disease, which is differentiated by the character and course of its pain, radiologic findings, jaundice, chronic indigestion and colic. Spasmodic or chronic appendicitis causes stomach disturbances not unlike gallbladder disease or ulcer. Here again a carefully taken history and our friend, the radiologist, lead us to the cause.

Cirrhosis of the liver, chronic alcoholism, pernicious anemia, gastric disturbances as associated with tuberculosis, pancreatitis and other causes of abdominal pain too numerous to mention may be ruled out by careful investigation. Remember the attributes of ulcer pain and let the radiologist do his work!

TREATMENT

When we come to the treatment of peptic ulcer we approach the mooted point between the internist and the surgeon. After hearing a symposium on peptic ulcer at the Albuquerque meeting last summer we were almost convinced that the role of the surgeon in the treatment of ulcer had become a minor one. One surgeon of some fame in the west passed the palm to the internist. In slang parlance he had "tossed up the sponge". However, many surgeons have not reached that point. I believe that these cases should be treated in co-operation with the internist, for a regulated diet and medical therapy postoperative is of great importance. At least until the altered physiology has become adapted to new conditions and surgical wounds in the viscus have become entirely healed.

Medical treatment as advocated by Sippy, Einhorn and others is applicable to the acute or small round mucosal type of ulcer, especially in the duodenum. Since we are still in the dark regarding the etiology, medical treatment must still be more or less empirical. The theory of Rosenau that it is due to a strain of streptococci emphasizes the relation to it of focal infections. When I was on the pathological service at the Cook County Hospital, we made blood cultures on about twenty-five cases of peptic ulcer and in seventeen found a streptococcus. We injected a suspension of these into the blood stream of rabbits, but were not very successful in reproducing ulcers, though in two cases we found a distinct ulcer of the stomach, and in two others sub-

mucosal hemorrhages. Carlson, of the University of Chicago, in his study of the physiology of the gastro-intestinal tract, can relieve ulcer pain by increasing the gastric acidity or by fluid or food. It is a well known fact that there are remissions in ulcer pain lasting from months to two years, and, as stated above, pathologists have found evidence of ulcers which have healed without treatment of any kind. Therefore, we have no proof of a specific cure for ulcer by medical means. We must grant, however, that there is a great deal of value in the alkali and dietary methods, which give the stomach rest and allow the lesion to heal, some permanently and others temporarily. As the old fellow said, "Let Nature do its perfect (?) work". An ulcer healed in this manner leaves a scar. The mucosal borders do not approximate in the healing process. Since the etiologic factor remains, and the site of the previous ulcer remains as a local focus of lowered resistance, the recurrence of the ulcer at the original site is not unlikely when medical treatment is discontinued. We might cite the varicose ulcer of the leg as an analogy. As long as the varicose veins remain, with scars of previous ulcers, there are frequent recurrences after repeated healing.

One of the first surgical procedures was the gastro-enterostomy, which has fallen somewhat into ill repute, largely due to its indiscriminate use, especially when an ulcer cannot be demonstrated, which may result in a disordered digestion which did not exist before. There is no set surgical procedure which can be followed in all cases. Posterior gastro-enterostomy with ligation of the pylorus in duodenal ulcer with or without resection of the ulcer, ruptured ulcer with suture of the leak, pyloric obstruction or cases in which adhesions are so dense as to obviate other measures, are its chief indications. Dr. Hans Finsterer of Vienna has practically discarded the gastro-enterostomy in favor of gastric resection except in cases of perforation or acute hemorrhage many of which he states will stand resection.

Large callous or indurated ulcers at or near the pylorus may be treated by a Billroth I, the Polya, or Polya-Balfour, with resection of the pylorus. The Polya operation with anastomoses of part of the resected end of the stomach to the side of the duodenum was a method we usually followed in this type of ulcer in Dr. Kanavel's clinic at Wesley Hospital, Chicago. The free end of the duodenum was attached to the side of the lesser curvature with a few interrupted sutures. We felt that this method was less likely to leak or cause trouble than the Billroth I, though many do the Billroth I without difficulty. The Finney pyloroplasty, or Horsley's operation, have their indications, the latter being a very successful method of dealing with these conditions. Judd's method of resecting indurated gastric ulcers is well known. A resection of the ulcer with the surrounding indurated tissue should be done whether or not we believe a peptic ulcer undergoes carcinomatous degeneration, since a callous ulcer is often indistinguishable from an early carcinomatous ulcer. A sleeve resection in hour glass stomach seems to cause less difficulty and alter the physiology less than the V-shaped resection and, as Judd says, the gastric acidity is much diminished. Dr. Finsterer's mortality in 407 cases has been 4.4 percent and in the last three years 1.8 percent in 158 cases in which resections were done. His work is largely done under local anesthesia with infiltration of the celiac plexus. The death rate with conservative methods including perforations and hemorrhages is probably not less than this. In the first twenty-four hours after a perforation surgical results are fairly good. With a longer period the death rate is high. Dr. Karl Meyer of Chicago has recently written a paper on the diagnosis of impending perforation and operation which is getting the diagnosis down rather fine. An infected gallbladder or appendix should

be removed as a possible focus of infection.

A medical and dietary regimen following operation until the stomach has accustomed itself to the altered physiology is vitally necessary to the successful surgical treatment of ulcer. As stated before, we grant that the acute or subacute peptic ulcer with little or no induration falls within the internist's domain, but to procrastinate with the chronic indurated or callous ulcer, in which such serious complications as perforations, hemorrhage and malignant degeneration are lying in wait, is to court disaster.

DISCUSSION

DR. C. A. THOMAS, Tucson: Would like to express appreciation of the paper and try to emphasize a few points. I consider etiology the most important point in a discussion of peptic ulcer, whether regarded as a surgical or medical condition. It should be regarded as a secondary disease. Many experiments have been performed in the effort to produce peptic ulcer, and we have found that probably no one factor is entirely responsible; traumatism, even to the blocking or destruction of four-fifths of the circulation to an area, does not regularly cause ulcer; we must have other factors in addition to the traumatism, and among these factors we must have infection. That is why I say that ulcer is a secondary disease and we should never leave any factor uninvestigated; for this reason, the elimination of foci of infection (teeth, tonsils, appendix, etc.) is necessary, and before surgical treatment is instituted, all these things must be dealt with. If organic deformity or obstruction is present, that may demand surgery. In surgery of the stomach, we should not be satisfied with a simple gastro-enterostomy, but the ulcer should be dealt with. A simple gastro-enterostomy would result in a cure in only 25 percent of the cases; other procedures would be required in the larger majority.

DR. J. C. MASSON, Rochester: The author has taken up the important points and will mention only one or two others. As the last speaker said, the part that infection plays in peptic ulcer is a real one. Am a great believer in Rosenow's ideas of the selective affinity of bacteria, and if anyone sees his experiments they will believe. One such is to take the pus from an acute appendix and inject it into an animal or into a large series of animals and then find definite evidence of acute trouble in the appendix, and many of them with trouble in the stomach, gallbladder or duodenum, with the same type of bacteria affecting more than one organ in the gastro-intestinal tract. In all cases of peptic ulcer, the appendix should be removed, if it shows any signs of trouble, because it probably harbors the same infection.

Under the diagnosis of peptic ulcer, the author gave credit to the x-ray as being a real help in 25 percent of the cases. We believe that this should be much higher. There is no doubt that the clinical history will usually indicate ulcer, but the x-ray man doing a great deal of gastro-intestinal work will have a very small percentage of error. At the clinic the x-ray is positive in about 95 percent of the cases; that is, they miss only about five percent of the ulcers which are afterwards proven to be present.

With regard to the treatment; the last doctor, in discussion, said that probably 25 percent of the cases would be benefited by gastro-enterostomy; our experience with duodenal ulcer is better than this; eighty percent of them, without anything else except the gastro-enterostomy being done, have been entirely satisfactory, as shown by our own follow-up system and that of the New York Life Insurance Company. We are doing more treatment to the ulcer locally at the present time. Statistics show that about 85 percent of these cases are satisfactory and that gastro-enterostomy alone compares very favorably with gastro-enterostomy and excision. We have gotten away from the use of permanent suture material, which is the principal cause of gastro-jejunal ulcer.

In gastric ulcer, there is no question about the excision, because we think there is a predisposition to malignancy, and we know that gastric ulcers become malignant in a much larger percentage than duodenal ulcer; therefore, the local ulcer should be excised.

DR. CARHART, Fort Bayard: Wish to make one point by way of warning to the internist. The majority of men believe in the Sippy method of alkalinizing the stomach contents. There is a condition resulting from the excessive use of alkalies which is just as grave as any of the symptoms due to ulcer or to the acidity. That is the condition of alkalosis. The heavy use of alkali is not without danger. A patient who has a low H-iron condition of the tissues and fluids is the type of case which will develop alkalosis. The complete alkalinizing of the stomach contents is wrong and not based on physiological grounds. All that is necessary to put the ulcer at rest is to reduce the normal physiological function to a minimum without neutralizing entirely with alkali. It will repay you to look up the literature on alkalosis.

DR. W. O. SWEEK, Phoenix: The question as to when a case becomes a surgical case should be left to the internist to answer. That responsibility should be the internist's. A gastric ulcer is not the surgeon's business until the internist says so.

DR. R. D. KENNEDY, Globe: We see so many of these cases who have had attacks extending over a number of years. Perhaps the internist can cure many ulcers, but what hope has the internist in curing the cases where induration exists?

DR. WOOLSTON(closing): In replying to Dr. Masson; we figure the value of the various diagnostic approaches on the basis of 100 percent, giving history 50 percent, x-ray 47 percent, stomach analysis, etc., 3 percent. With regard to the Sippy treatment; if you accept Carlson's latest ideas, it knocks the Sippy method in the head; he says there is no disease known capable of producing a true hyperacidity. It must be further remembered that in gastro-duodenal ulcer, there may be normal acidity, so-called hyperacidity or complete achlorhydria. In 27 cases of proven gastric ulcer there were four with achlorhydria and four with low HCl. If the medical treatment depends for its cure on neutralizing the stomach contents as continually as possible, it cannot relieve if the hyperacidity does not exist.

CASE REPORT

DR. W. L. BROWN, El Paso, Texas.)

An unusual case of spider bite: Patient male, age 40, weight 195 pounds, section foreman, and lives at a station on the desert.

On the evening of December 10 he took some pills, and about five in the morning they acted on his bowels. He went to a surface toilet, which had not been much in use and was full of cobwebs beneath the seat. While there he was stung on the end of the penis.

His description of what occurred is as follows:

No puncture or local swelling was visible at any time. The sting felt like a touch of acid, with very little pain at that time. In about fifteen minutes severe pain developed within six or eight inch radius. From the waist down a nervousness was felt, which rapidly developed into severe pain and jerking of the limbs.

Pain began to move upward, but never seemed to reach higher than the chest. At the beginning of the severe pain profuse perspiration began and continued for about seventy-two hours, with a strong vinegar-like odor; also a scent of ammonia was noticeable when bed covers were raised.

He arrived at the hospital at 7:50, about two hours and fifteen minutes after the accident. At that time the pain was so agonizing that it was impossible for him to be still a sufficient length of time to get a hypodermic. He was still perspiring profusely. He was given one-quarter of a grain of morphine, and in twenty minutes this was repeated. At this time, while his hands and feet were very cold, he complained of severe burning in soles of his feet. Also at this time he had severe pains in his abdomen; in fact, all over. He was also extremely nervous and showed evidence of fear. At 4:30 p. m. it was necessary to have another quarter grain of morphine, and another at 5 a. m. the following morning, making one grain of morphine during the twenty-four hours. He required no morphine after the first twenty-four hours, but continued in profuse perspiration. Some of the attendants thought the perspiration had the odor of acetic acid. He only vomited once, at one o'clock, on the day he entered the hospital. By the evening of the first day his abdomen was decidedly distended, and considerable difficulty was experienced in moving his bowels during the following twenty-four hours. On the second morning following his entrance into the hospital he was put on full doses of bromides for the nerves. That evening he developed a diffuse dermatitis, which caused a great deal of burning and looked like a severe case of scarlet fever, except that the rash did not involve his neck and face. He left the hospital on the seventeenth, five days after entering, looking hollow-eyed, like he had lost ten or fifteen pounds of weight, with still some burning in the soles of his feet, and quite nervous. There was never any evidence whatever of a sting locally at any time he was in the hospital; was never any local swelling, nor discoloration. The only localizing indica-

tion of the sting was the local pain.

Immediately after the spider bite the patient looked into the toilet and saw a small black spider in the web. This spider was observed there each day for six or seven days. No other spiders were observed. It was caught alive, and was found to be the Latrodectus mactans, known as the "black widow," "shoe button spider," and Po-ko-moo spider.

The following is the description of the spider, from "Poisonous Animals of the Desert," by Charles T. Vorhies:

There is a certain species of small, black spider, about half an inch long—the "black widow," or "shoe button spider," Latrodectus mactans, which is seemingly a somewhat formidable exception to the general rule concerning small spiders. This kind is reported from "the South," not specifically Arizona, but doubtless exists here. Experimental evidence shows that this other species of Latrodectus from various parts of the world have a much more virulent poison than ordinary spiders. This is borne out by reported cases, while in the various countries where they are native these spiders are almost universally held to be dangerous.

The Latrodectus mactans (called Po-ko-moo by certain California Indians) is, according to Merriam, as quoted by Comstock, ranked by them "with the rattlesnake as poison. To poison their arrows they mash the spider and rub the points of the arrows in it." The symptoms produced experimentally agree with the symptoms of persons who have been snake bitten. There are several cases on record of severe symptoms following the bite of this species, one of which ended fatally. This may even then have been an exceptional case due to personal condition or even in part to fear. As I read over the account of this and another severe case from the same locality (North Carolina) I cannot but wonder whether the reported dosage with alcohol may not have put the fatal touch upon the one case and the nearly fatal touch upon the other. We know now that whiskey is the worst thing to give at certain stages in rattlesnake bite, notwithstanding popular opinion to the contrary, and it may well be so in the case of the bite of this spider. A case is personally reported to me from Yuma, Arizona, of a bite from a black spider, doubtless this or a related species. In this case the victim, a lady, was bitten on the hand and serious "symptoms of blood poisoning" followed, which it required some weeks to cure.

This exceptional spider is easily recognizable, being shiny black, with red or yellow markings. An hour-glass shaped mark on the lower side of the abdomen is the most constant of these marks. Spots may in addition be found along the middle of the back. The male has in addition to these, four pairs of stripes on the sides of the abdomen. A gray species of this genus has been described from California, and may belong to our fauna, but no reports are available concerning injury from it.

Discussion by DR. PAUL GALLAGHER: There is no positive evidence that the cause in this case was a spider, but from one case which I saw, where a spider was the undoubted cause, I believe that it was the same here.

Several years ago a man presented himself with a small spider which he had killed. It was impossible to determine its characteristics, as it had been mashed, but it was evidently a black spider about the size of the small fingernail. During defecation he was stung on the penis. No local lesion of any sort developed at all. But beginning almost at once he had severe pain in the groin and testicles. He said this pain felt as though one were invaginating the testicle through the scrotum into the inguinal canal with a hot iron. As the pain in this area subsided somewhat he developed pain across the chest, constricting in character, but not interfering with respiration, and a severe pain in the back. He then developed pain in the legs and burning in the soles of the feet and in the palms of the hands. The pain at all times, until suppressed by morphine, was excruciating in character.

In describing this pain later, he stated that at one time he had been in an automobile accident where the machine fell upon and fractured one thigh, pinning him to the ground. When help arrived, the car was jacked up and twice the pack slipped, letting the car fall back upon the thigh. He believed that this pain was much more severe than that which he felt when the car fell from the jack upon the broken thigh.

He required in all six quarter grain tablets of morphine at half hour or hour intervals to relieve his pain; all were given between eight in the morning and five in the evening. After relieving his pain, he recovered very promptly so that at the end of twenty-four hours he was well again except for terrific soreness of all his trunk muscles.

X-RAY MACHINE FOR SALE

A Victor bedside x-ray unit, thirty millampere, with 30 m.a., radiator Coolidge tube, in excellent condition. Can be purchased at a very attractive figure. Excellent outfit for a small hospital or doctor who is not located where there is an x-ray laboratory. For further particulars, write Box 1328, Phoenix, Ariz.

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DR. H. S. BENNETT

Fort Bayard, N. M.

Dr. H. S. Bennett, of the United States Veterans' Bureau Hospital, at Fort Bayard, N. M., died on February 3rd, following an operation for obstruction of the bowels.

Dr. Bennett was born in New York City and was 47 years of age at the time of his death. He took his bachelor's degree at Princeton University and his medical degree at the College of Physicians and Surgeons in New York City, practicing in Washington, D. C., for a number of years. He was connected with the U. S. Public Health Reserve during the epidemic of 1918, and had been connected with the Veterans' Bureau, as a specialist in heart and chest diseases, for the past three years, being located at various times at Oteen, N. C.; Alexandria, La., and for the past year had been at Fort Bayard.

Dr. Bennett, on arriving at Fort Bayard, immediately showed an interest in organized medical affairs, which was very gratifying to the profession of New Mexico. He helped revive and reorganize the Grant County Medical Society and was secretary of the organization at the time of his death. He was a guest of the Medical and Surgical Association of the Southwest at their El Paso meeting in December, reading a very scholarly paper on "The Heart in Tuberculosis", which was printed in the February issue of this journal. He was enlisted in the plans for enlarging the scope and influence of the Southwest organization, and his death is a distinct loss to the medical profession of the entire southwest, where men who are genuinely interested in organized professional efficiency are all too few.

Burial was made at the cemetery at Silver City, N. M.

DR. HOWARD THOMPSON (El Paso) RETIRES

Dr. Howard Thompson, the grand old man of the El Paso County Medical Society, in the 74th year of his life, rests on his oars in retirement from the practice of medicine.

Dr. Thompson graduated from the Medical College of Ohio, in Cincinnati, in March, 1881, practiced from that time until April, 1885, in Franklin, Ind., then came west and was located at the Mescalero Indian Agency for four years. Following a term of postgraduate work at the University of Cincinnati, he came to El Paso in March, 1890, and for 25 years had the same office in the building the site of which is now occupied by the State National Bank.

Dr. Thompson was the fifth president of the El Paso County Medical Society, serving from 1901 to 1902.

For over thirty-three years he served well this community as a very active and capable physician.

Since his retirement, Dr. Thompson has returned to the Mescalero Indian Agency, where he is enjoying his more than three score and ten years in good health and happiness.

WANTED—A Physician to locate at Reserve, N. M., the County seat of Catron Co. For information write to Hugh Fraser, Reserve, N. M.

EL PASO COUNTY MEDICAL SOCIETY REPORTS

Regular meeting of the El Paso County Medical Society was held at the University Club December 3, 1923.

The meeting was called to order at 8:10 p. m. by the president and minutes of the previous meeting were read and approved. There were 36 members and 3 visitors present. The president in an announcement drew attention to the closeness of the meetings of the 10th and 17th to that of the Medical and Surgical Association of the Southwest, December 11-12-13, with the probable selection of December 17th as the annual banquet date of this society, the closeness of the 24th with Christmas, and the 31st with New Year's, asking what the society desired to do with regard to having meetings on those dates. Motion was made by Dr. W. L. Brown and seconded by Dr. Paul Gallagher to have no meetings until after the first of the year. Motion was carried.

There were no case reports. Dr. H. H. Stark read a paper, "The Field of Vision", which was illustrated with 24 slides. Discussions were made by Drs. J. M. Britton, J. W. Davis, F. P. Schuster, E. A. Duncan, Hugh Crouse and E. H. Irvin.

Dr. R. B. Homan made an announcement, explaining the efforts of the State Medical Association to create a special fund of $5 per member which is to be devoted to educational purposes, and the selection of prominent men throughout the state for literature. He asked the president to create a committee to raise the quota for this society. Dr. Waite made motion that such a committee be created and that Dr. R. B. Homan be made its chairman; seconded by Dr. J. W. Laws, and carried.

Dr. J. W. Laws offered two resolutions, one in behalf of Dr. John W. Tappan and the other Sanitary Engineer R. E. Tarbett, United States Public Health Service, expressing the appreciation of this society for their invaluable efforts in the mosquito campaign. The motion was carried.

Dr. W. L. Brown made motion that resolution be drawn of a similar character for Dr. Hugh Crouse; seconded by Dr. J. W. Laws, and carried. In a statement that what he had done was for the society and his city, Dr. Crouse modestly asked that such action not be taken. He was, however, overruled. Dr. W. L. Brown and Dr. J. W. Laws were appointed members of the committee to draw up such resolution.

The president called for committee reports as to the advancement of arrangements for the meeting of the Medical and Surgical Association of the Southwest. It was noted that everything is in readiness.

Dr. Hugh Crouse outlined six talks that he has been requested to give to the teachers of the El Paso schools (numbering about 900) on public health, prevention of disease, etc., and asked suggestions from the members. It was conceded that he had covered the field completely, and no suggestions were offered.

Next in order of business was election of officers, which was done by nominating by informal ballot and election by ballot. Those nominated for president were Drs. J. A. Hardy, W. W. Waite, C. P. Brown and E. B. Rogers. Second ballot was drawn, in which Dr. Waite received 19 votes and Dr. Hardy 17. This not being a majority of the members present, Dr. Waite was elected by acclamation.

For vice-president there was but one nomination made, and that was for Dr. J. A. Hardy, who was elected by acclamation.

For secretary-treasurer the nominees were Drs. F. P. Schuster, W. R. Jamieson, F. O. Barrett and M. I. Leff. On ballot Dr. Barrett received 16 votes, Dr. F. P. Schuster 9, and Dr. W. R. Jamieson 1. Dr. Jamieson made motion that Dr. Barrett be elected by acclamation, which was done.

For librarian Dr. E. A. Duncan was nominated and elected by acclamation.

For delegate to the Chamber of Commerce, Dr. J. W. Laws was nominated by ballot and elected by acclamation.

Censors: It was an unusual feature that, due to the resignation of Dr. B. W. Wright and the death of Dr. W. R. Smith, who were the second and third year appointees, all three of these positions became open. Nominations for these three offices were made on the same ballot by ruling of the president, the doctor receiving the highest vote to serve three years, next highest two years, and third highest one year, and the following were elected by acclamation: Dr. S. T. Swope for three years, Dr. Harry Leigh for two years, and Dr. Paul Gallagher for one year.

For milk committee, Drs. Craig and Safford were the successful nominees and were elected by acclamation.

For representative of the American Society for the Advancement of Science, Dr. E. W. Rheinheimer was nominated by unanimous vote and elected by acclamation.

No other business being brought before the house, motion to adjourn was entertained at 10:40 p. m.

Minutes of January 7th meeting were published last month.

A regular meeting of the El Paso County Medical Society was held January 14, 1924, at the University Club.

The meeting was called to order by Dr. W. W. Waite, president, at 8 p. m. There were present 24 members and two visitors.

Owing to the absence of the secretary-treasurer, the reading of the minutes of the last meeting was dispensed with.

Dr. Crouse presented a very interesting case of spastic gait, a man about 28 years of age presenting the appearance of one aged 40. Discussions were made by Dr. Swope and Dr. S. A. Schuster.

There being no further case reports, the program, in charge of Dr. Harry Leigh, fol-

lowed. The symposium on "Congenital Syphilis" was opened by Dr. Leigh, whose paper was illustrated by slides showing different facial phases of the disease in children.

Dr. Henri Letord, dental surgeon, told how the teeth are affected in cases of hereditary syphilis, showing slides of Hutchinson teeth and others.

Dr. F. P. Schuster discussed the subject from the standpoint of the eye, ear, nose and throat.

Dr. P. E. McChesney spoke of the neurological results from congenital syphilis and told of the large number of cases found in the examination of school children.

The symposium attracted a great deal of interest and was liberally discussed by Dr. S. A. Schuster, who brought out the fact that in nearly all cases which had come to his attention at the clinic, there was a secondary infection and that anti-syphilitic treatment alone was not sufficient in such cases.

Major Scott, in discussion, told of the value of the metallic bib, in treatment of congenital syphilis, when another cloth, saturated with mercurial ointment, was slipped in the bib.

Dr. Waite brought up a number of points which had not been mentioned by Dr. Leigh in his paper, and asked just how far hereditary syphilis could be transmitted—if transmitted to the third generation, would that person transmit it to his or her offspring?

In closing, Dr. Leigh stated that there were a great many points upon which he had not attempted to touch in his paper, and told of a case he had had several months ago, which was undoubtedly congenital syphilis in the third generation.

The board of censors, Drs. Swope, Leigh and Gallagher, submitted approval of the application for membership of Dr. J. E. Wright, Alpine, Brewster County, Texas. It was moved and seconded that Dr. Wright be accepted for membership and the motion unanimously carried.

No further business coming before the chair, the meeting was adjourned at 9:55 p. m.

Regular meeting of the El Paso County Medical Association was held at the University Club, El Paso, Texas, January 21, 1924.

The meeting was called to order by the president, Dr. Willis W. Waite, at 8:10 p. m. There were present 23 members and 3 visitors.

The minutes of the last meeting were not read, the president announcing that this would be dispensed with if it met with the approval of the members.

There was one announcement—the invitation of Messrs. Peak and Hagedon to the official opening of their new establishment.

No clinical cases being presented, Dr. Crouse was asked to proceed with his symposium on the "History of Medicine". Dr. Crouse gave a very brief outline of medical history, which was followed by a paper by Dr. E. A. Duncan, entitled "The History of Percussion and the Life of Auenbrugger", who inaugurated the method of diagnosis. Dr. Crouse then gave a very interesting impromptu talk on the history of auscultation and Laennec, who devised this method of diagnosis and invented the stethoscope.

Discussion was opened by Dr. S. D. Swope, who, in the course of his talk, mentioned the discovery of a skull in one of our western states, which had a trephine. This was the first of its kind to be found in North America, many having been found in Central and South America. The interest attached to this incident is the evidence of very early usage of this type of surgery.

Further discussion was entered into by Drs. Leff, Egbert, Laws, Capt. St. Peter, Drs. Riley, Werley, Gallagher, Leigh, Darnell and Waite, and discussion was closed by Dr. Crouse.

Report of the committee to investigate the advisability of a permanent home for this society was made by Dr. Gallagher, who stated that in the First National Bank Building three rooms, which could be turned into one, could be procured for $70; that the cost of the furnishings would be about $200, and that the Dental Society would agree to hold its meetings there at $10 per month, which would make the rental $60 per month. He did not feel that the society should assume the additional indebtedness oer what it is now paying, which would be about $15 per month.

Dr. Werley made motion, seconded by Dr. Hardy, that the committee be continued and make additional report. This was carried and Dr. Gallagher resigned from the committee, stating that he was not in favor of making a change.

The president announced the appointment of the legislative committee, as follows: Dr. Strong, Dr. Rheinheimer and Dr. E. B. Thompson.

The president also announced the holding of the annual meeting of the Southwestern Medical and Surgical Association of the Southwest during the coming fall in Phoenix and urged that as many papers as possible be written by members of this society and that oral requests to be on the program be made in order that this society might be well represented and help in the success of the meeting.

He announced further that papers for the meeting of the State Association to be held in May must first be read before the County Society and reported to the state organization not later than March 25, 1924.

As there was no other business, motion to adjourn was entertained at 9:57 p. m.

Regular meeting of the El Paso County Medical Association was held at the University Club on January 28th.

The meeting was called to order by the president, Dr. Willis W. Waite, at 8:10 p. m., there being 19 members and 1 visitor present. Reading of the minutes of the last

meeting were dispensed with. Clinical cases were then called for in accordance with the program prepared for the evening.

Case Report by Dr. Meyer I. Leff.

The following interesting case of extrapleural thoracoplasty, the first case of its kind to be performed in the United States, was reported by Dr. Meyer I. Leff:

L. S., male, age 30, at time of operation had been suffering from pulmonary tuberculosis six years previous to operation. Climatic and hygienic treatment did not relieve it. He was running a temperature between 103 and 105, heart very rapid and had frequent hemorrhages. Left lung was full of small cavities, sputum profuse and laden with tubercle bacilli. Patient was losing ground rapidly.

First operation, extrapleural thoracoplasty, for permanent collapsing of the left lung, was performed by Dr. Willie Meyer, New York, in November, 1918, at which time portions of the tenth to fourth ribs, inclusive, were removed. Second operation was performed December 5, 1918, three weeks after the first. Portions of the fifth to second ribs, inclusive, were removed.

Both operations were performed under local anesthesia. After the first operation, patient's temperature came down; after the second operation, the cough was improved, sputum diminished in quantity and free from tubercle bacilli. The size of the removed portions varied between 7 inches from the tenth rib and 2 inches from the second rib. Patient has made a complete recovery, has been working for the last three years and is clinically cured.

Case Report by Drs. Hugh Crouse and G. Werley.

DR. CROUSE: I am going to report a case, dividing it into two parts, allowing the doctors present at the conclusion of the first part or division to make a guess as to the diagnosis, basing their opinion on the history as given in the primary division of the report. The second division of the case history will be handled by Dr. Werley, and at its conclusion he will give you the diagnosis.

A man, 49 years of age, had not had a sick day in 20 years, does not drink, smoke or use tobacco in any form, keeps absolutely regular hours. Friday at noon had a lunch consisting of soup and cold slaw, was taken with intense pain in the sternal region, upper third, shortly after eating. I saw him within 30 minutes from the time the attack began; pulse 72, perfectly regular, yet the man was absolutely fighting for air and had the facial expression of intense pain. Temperature absolutely normal. This man, a Spanish War veteran, with lots of nerve, was not shamming. I assumed it was an acute aortic dilatation, with its consequent sympathetic nerve irritation and reflex to the right arm. I gave him ¼ grain morphine, shortly afterwards 1/30 grain apomorphin, after which he vomited about a gallon. This vomitus was very red, but his wife said he had been eating tomatoes. His vomiting did not seem to relieve his pain. I gave him another dose of morphine, with no relief. Finally I had to administer chloroform in order to afford him relief. If you touched his chest to the right of the sternum about the fourth rib, it was so intensely painful to him that he would cry, "For God's sake, stop!" About four o'clock he vomited again. This was a liter of seemingly diluted blood. Two hours later he vomited again, seemingly pure blood. His vomiting was repeated at varied intervals in gradually decreasing quantities until four o'clock the subsequent morning. In the evening his pulse became slightly irregular, reaching the maximum height, 110. No sounds over the chest indicating any pulmonary involvement except for a slightly increased bronchial breathing near the hilus of the lung. He was treated with morphine and absolute quiet, not letting him up and giving him nothing but cracked ice by mouth.

What was the matter with him?

A further point; two weeks before this attack, his blood pressure was 130 and he passed life insurance examination for $10,000.

Dr. Waite suggested pulmonary thrombosis. Members present asked if x-ray had been made and were informed that this had been impossible, as yet. Numerous conjectures were made as to the diagnosis in the case by various members present.

DR. WERLEY: I first saw the patient Saturday night. Dr. Waite made a leukocyte count and found white count 20,000 polys 87; red count 4,400,000 hemoglobin 75 percent. Temperature had gone up a little, running from 99 to 100.8, fever continuous. He had a great deal of dyspnea, with respiration that was somewhat irregular and just a little rapid, about 24, sometimes as high as 26, sometimes 20, and while he did not have to sit up to get his breath, he was not satisfied with what he could get and said he could not fill the upper part of his chest. About the time I saw him he was comparatively easy, but it was only about Sunday night that we could leave off morphine. He has told me since that he called for morphine before he had pain, for fear the terrific pain would come back again, and therefore he wanted to have the morphine in plenty of time. On going over his chest, I found heart sounds quite readily heard at the base of the heart, with the second pulmonary sound a good deal accentuated. The heart sounds were heard without any great difficulty, but they were certainly somewhat feeble. A diffuse impulse could be felt slightly over the apical region of the heart, but it was impossible to locate the apex at any definite point. The outline of the heart was enlarged. The arch was 6 cm. wide. The right side was 4½ cm. to the right; apex wall beyond the nipple line at least almost 2 cm. The liver could not be felt; spleen could not be felt; abdomen was somewhat distended with gas, but was soft. At one time he complained of a little pain over the appendix. I pressed down

deep and there certainly was not anything there. He said he thought maybe he had strained himself. I listened to the lungs, but there was nothing to be heard abnormal except at the right base below the scapula over a wide area there were very definite crackling rales at the end of inspiration. He still has these rales, but not as marked as they were. At the present time heart apex has gone back inside the nipple line. Sunday at 6 a. m., Dr. Crouse was called to see him and called me. At that time he had a squeaky loud to and fro sound synchronous with the heart beat, disappearing as it went away from the heart, but which could be heard over a wide area. When I went back at night, this had disappeared. Blood pressuer was 114 S., 74 D. When he was well his pressure ran about 130, so it was quite evident there was a definite fall in blood pressure.

My diagnosis, cardiac infarct, is based on what I have read and seen about such cases. The points in the diagnosis of cardiac infarct are: First, you have pain, a type of angina pectoris, but in cardiac infarct there are certain points more or less diagnostic—a little fever, a drop in blood pressure and dyspnea is quite characteristic, whereas, in angina there is a rise in blood pressure and no dyspnea. A third point in the differentiation is that the pain persists for at least 48 hours and is severe, whereas, in the ordinary case of angina pectoris it is often very brief and only for a few seconds or minutes, at least not over a half hour, as a rule. It usually passes quickly, while the infarct pain is something you cannot get rid of. You give ¼ grain of morphine and it does not relieve it. It was necessary to give this patient chloroform before he finally got at all comfortable. The pericardial friction rub is of great diagnostic value. Also there is an increased leucocyte count which is not found in an ordinary angina.

Hamburger reports two cases of angina pectoris of the abdominal type, associated with jaundice. He says a number of cases reported have had gastric hemorrhages with the attack. So the fact of a gastric hemorrhage does not prevent us from making a diagnosis of cardiac infarct. I have seen such cases myself. There is much danger of cardiac infarct being mistaken for some surgical condition of the abdomen.

I think when we come to watch for these things we will find they are very much more common than we think. There is nothing that I know of except infarct of the heart that causes anyone to die without a struggle. That differentiates it from apoplexy. Another diagnostic point in these cases is that nearly always you will find rales in the chest. That is due to the left heart being disabled.

Case Report by Dr. E. J. Cummins.

I have a case to report tonight. I believe it is the second case of its nature to be reported before the El Paso County Medical Society, the fourth case of its kind to be reported in Texas, and the eighth case to be reported in the United States and Canada. It is a case of mycetoma or Madura foot.

This patient, a Mexican woman, 28 years of age, always lived in Mexico until quite recently and is the mother of three children; two died in early childhood—we do not know from what disease; the last child a baby three weeks old, living and well. Nine years ago she says she felt something in the sole of her foot as if there was a sliver in it and she picked it with a needle, trying to get the sliver out, but was unable to find anything. Shortly after that a nodule appeared there, which gradually grew, and then other nodules appeared. Up until two months ago she went around walking perfectly comfortable, but since that time the growth was very rapid until it reached its present size. I have a specimen here and some pictures of the woman. The first one is a photograph of the woman and the other ones are photographs of the specimen.

This condition is caused by a fungus called mycetoma and can occur anywhere in the body, but most frequently occurs in the foot.

Most of the cases give a distinct history of some injury. Dr. Pagenstecher in San Antonio reported two cases in 1922. Both of them had an injury, I believe—one dropped a brick on his foot—the other one a board. They nearly always form sinuses, and these nodules break down and discharge. There are three main types, according to the character of the granules that are expelled from the sinuses. The disease goes along slowly until it involves the bones. It does not metastasize either through the blood or the lymph channels, but grows by direct extension. You can see the x-ray pictures and Dr. Waite will show you the specimen. The only successful treatment is surgery.

Case Report by Dr. Hugh W. Crouse, El Paso, Texas.

Male, age 51; single; occupation, printer. Height 5 ft. 5½ in.; weight 126; lost 10 pounds; usual, 136.

Chief Complaint: Began having trouble in July or August with swelling and affected glands under left ear. Dr. Schenck thought it might be from his teeth. Had them all pulled. Started to go down and get better, but the rainy weather set in, he caught cold, and the swelling rose again; after that was over, the snow and cold weather set in, and the trouble gradually increased. Last Wednesday it broke. Dr. Schenck told someone else —not him—that he did not know whether it was tuberculous, or something else. When it opened, there was quite a bit of colorless, sticky liquid came out. Has been running off and on ever since it opened; last night ran considerably. Is now getting to be somewhat bloody looking. Very, very painful. Burning pain, and then every once in so often a sharp shooting pain up into the ear. More painful before broke. Particularly bad at night—possibly because he notices it more.

F. H.: Father died 68, stroke of paralysis.

Mother, general debility following change of life—about 60. Three brothers, one sister, good health. Others died in infancy. No tuberculosis or cancer in the family.

P. H.: Smokes. Says he has a cigarette in his mouth all the time, whether lighted or not. No illnesses until in 1907 had pneumonia—light attack. No other serious illnesses until this commenced. Shoulder broken in 1901—street car accident—no other serious accidents. No operations. Has always used liquor more or less; never in excess. Has been drunk, but has never made a habit of it. No venereal story. Had pyorrhea before the commencement of this trouble. Appetite good, ordinarily. Sleeping poorly on account of the pain. Is sleeping better now than he did before it opened. Has been taking sal hepatica every morning; if he does not, is constipated, since this trouble came on. Bladder all right.

P. E.: Pulse 126; S. B. P. 136; D. B. P. 84; P. P. 52; E. I. 27720.

Varicosed condition of veins of legs. Skin rather dry. Patient rather emaciated. Small epigastric hernia about 6 centimeters above navel. Joints seemingly normal, outside of ordinary changes that labor would produce. On left hand side, in the region of the carotid, radiating back into the mastoidal area of the carotid, is a decidedly enlarged tumor, which runs on down practically to the middle of the neck, quite cleanly demarked; extends back pretty nearly to the middle occipit. Undoubtedly a carotid tumor. Nature of such to be decided after blood has been gone over, secretions have been examined, and general history of patient weighed.

Teeth have all been extracted.

Tongue coated, rather darkened, brown, slightly tremulous. Tongue decidedly thickened.

Tonsils enlarged; left side seems to be involved along with the carotid growth.

Carotid growth has been described. Glands, supra-clavicular, infra-clavicular, both sides, not involved. Subscapular glands are not involved. Axillary also free of any involvement. Epitrochlear glands, mammary glands, negative. Inguinal glands also not enlarged, except a little bit on the right. No signs of hernia.

Heart, apex beat two centimeters below, about one inside of left nipple. All valve sounds, while rather faint, particularly over the pulmonary and aortic, no irregularity or suggestion of any valvular trouble.

Lungs: Left, there is a lagging in the respiration, but no distinct roughness. Right, free of lagging and roughness. Posteriorly, there are some coarse rales at the apex of the left; extends down to the root. Pretty nearly vesicular in their nature. Base of lung clear. Right, free of any rales or roughness. This chest will be examined with the x-ray—stereo pictures and fluoroscopy to be made. Reasons for investigation with x-ray, the fact of the growth immediate vicinity of the luug might be a metastasis into the lung.

Liver seemingly normal in size. Gallbladder negative to Murphy test. Stomach; quite a fair Rovsing. Abdomen pretty nearly scaphoid. Percussion of stomach shows greater curvature about a centimeter below the navel. General percussion indicates there is some dilatation of this stomach. Kidneys; palpation shows right kidney decidedly enlarged. It is movable and either congenital or secondary enlargement. Left also palpable, slightly enlarged, but the right is decidedly enlarged. Appendix; Murphy test, negative; deep percussion negative.

Neurological; there is an irregularity of the pupils. Right larger than left. Both these pupils react to light. Reflexes, I would classify as normal.

Blood; Wassermann negative; Noguchi negative.

X-ray; Fluoroscopy shows apices black, anteriorly; absolutely no light in them. Posteriorly, some change under cough. Postbronchial space cloudy. Diaphragmatic angle fair. Diaphragmatic excursion poor. Like it is held by adhesions in the center. No fluid seen.

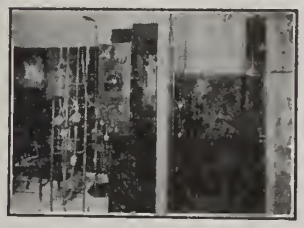
Stereorodiograph shows an odd buttoning out of the arch of the aorta just to the right of the mediastinum; at first glance seems like it is the aorta, but more careful study seems to indicate in all probability it is a calcareous degenerated peribronchial gland. This is in immediate proximity to the sternal end of the fourth rib, and extends up to the third. The heart does not go beyond the mediastinum to the right. In other words, its shadow seems to be concealed by the sternum itself, demonstrating this is a very small and pendulous heart, Roots of the lungs both thickened, striated, and shot with old, mild, years-ago tubercular process, healed. Apices of the right lung shows old tubercular condition. No activity is demonstrable, although there has been considerable involvement, as low down as the top of the fourth rib. Hyalin lines run down to the diaphragm on the right side, demonstrating two adhesions to the diaphragm, one a very acute angulation of the diaphragm. This lung is shot clear through with some striated points, particularly around its root. Diaphragm on the left is in very fine shape indeed; some thickening around the peribronchial gland; left apices a little bit hazy; would seem to have been considerably old, healed tuberculous process, the main process having been in the right lung, and some involvement in the peribronchial gland left. No signs of metastasis or malignancy.

Diagnosis: Malignancy of left parotid gland.

Operation was the combined technic of dealing with presumable malignancy of the parotid, left side. Incision was Y-shaped; one incision starting over the zygomatic process, sweeping down and then about the middle of the neck joining with the posterior leg of the Y, which extended from the upper



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CALVIN B. WITTER, M.D.
Roentgenologist

EDWIN D. WARD, M.D.
Assistant Medical Director

T. C. CROWELL, M.D.
Pathologist

portion of the mastoid to unite with this. Then a straight line pretty nearly to the clavicle. The two legs of the Y were united by sweeping around close to the ear. All structures were carefully isolated. The facial nerve was located at upper lobe of parotid, which did not seem to be involved. Therefore, three branches of the facial and careful dissection with scissors and gauze was carried out to avoid injury to this important nerve. The lobe was dissected off carefully, and then the incision from below gradually lifted up so as to do a good deal like the Colonel Gray debridement technic in infectious or block removal of Crile of all glands. The lower area of the wound was then followed up posteriorly, anteriorly and inferiorly, and the tumor, which extended deep into the deeper structures of the neck, posteriorly and anteriorly, were separated from the nerve supply.

The spinal accessory was sought and located. The various branches of the cervical were located also. The sterno-cleido-mastoid muscle was incorporated in the tumor, and had to be resected. The diagastric also. The tumor lay on the internal carotid. The superficial and the deep jugular were exposed and had to be ligated. The entire mass was slowly dissected out, at times with the cautery blade, where important vessels and nerves did not forbid, and the supra-clavicular fat removed by cautery, and the tumor gradually lifted out. The tumor was a caseated structure. It extruded the substance both anteriorly and posteriorly.

Length of operation was three and one-half hours. The mass was finally and eventually lifted out in toto and measured 14 centimeters longitudinally and 12 centimeters transversely. The thickness of it was 8 centimeters, being an ovoid. Condition of the patient varied on the table; at times pulse being rather irregular; highest rate was 120. Patient left the table with pulse 100, rather cyanosed. A careful hemostatic technic was carried out. There was no loss of blood. Operation was painstakingly slow and careful. Returned to bed with pulse 100. Given three pints of soda dextrose, usual rectal administration, given in the first forty minutes; 1000 ccs. of hypodermoclysis postaxillary line injections given.

An hour and a half after returning to bed, patient suddenly collapsed and died. It was believed to be due to cerebral embolus account of the base of the brain being so closely approximated with the growth. It was intended that the wide space where the skin could not be approximated should be closed later, Wulff skin and fat graft method, the wound to be left open for better entrance of deep x-ray therapy.

A postmortem was held by Dr. Willis W. Waite on account of the fact that the public health officer is exceedingly careful as to reporting causes of sudden death, and Dr. Wilson, the health officer, demanded that postmortem be held before he would issue a death certificate.

Note: What was pathologist's report on tumor removed?—Ed.

Report of Postmortem.

Body embalmed before examining. Body that of a slender man apparently somewhat past middle age, about moderate height. No distention of abdomen, no enlarged glands. On left side just below ear, extending down into the neck, there is a large wound, partially closed but partly open, exposing structures beneath. This has the appearance of being very recent. Skull was of moderate thickness; brain was removed and completely sectioned and examined, but revealed no gross pathological changes. Median incision made from top of sternum to pubis. Small amount of subcutaneous fat, muscles rather poorly developed. On opening the abdomen no excess of fluid. Omentum free and contained scarcely any fat. Intestines practically empty and contracted, free from gas; no adhesions noted anywhere in the abdomen. Mesentery, both large and small bowel, was rather long. On opening chest, right pleural cavity was obliterated with fibrous adhesions, but the lung could be separated from the pleura without tearing the surface of the lung. The left lung was collapsed and quite markedly contracted. No excess of fluid in pleural cavity. A few hard nodules at the apex of the left lung. There were a number of rather long dense fibrous adhesions between the lung and the wall of the cavity. Right lung, on removal, is quite solid and firm in most of the upper half of the upper lobe, the rest of the lung air containing. On section, two-thirds of the upper lobe contained numerous rather deep pigmented dark gray areas. In one or two places there are caseous nodules, slightly larger than peas. The rest of the lung is more or less pigmented and contains some necrosed fibrous tissue. Left lung on removal is quite collapsed, but still contains some air. On section, grayish pink color; on pressure, small amount of bloody fluid exudes. Pericardium contains no excess of fluid; heart small and contracted. On removal tricuspid ring barely admits two fingers; mitral ring admits only the large finger. On section, all the valves are intact, but the flaps of the mitral valve are somewhat thickened and contain patches of sclerosis. The aortic cusps are somewhat thickened and contain patches of sclerosis. The aortic cusps are somewhat thickened and there is a slight amount of sclerosis at the base of the aorta. Kidneys on removal are of pinkish color and on section striations are fairly well made out. Liver, about normal size; over right lobe is considerable reddish discoloration. On section, there is a mottled appearance, the dark red areas intermixed with areas of a lighter brown color. The darker areas seem to be a little softer than the areas that look more like normal liver tissue. This change is confined to the right lobe. Gallbladder moderately distended with bile, free from stones.

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Diagnosis: Spontaneous pneumothorax, fibrous pleurisy of the left lung completely obliterating; chronic fibrous tuberculosis, apices both lungs, most extensive in the right; fibrous pleurisy of the right lung.

Dr. Waite gave a short talk on diphtheria, stating that in cases of children with scabby noses, culture was usually positive.

No further business appearing, the meeting was adjourned at 10 p. m.

CHAVES COUNTY MEDICAL SOCIETY

Dr. C. M. Yater, Secretary

At the regular meeting held on the night of February 26th, a very interesting case was reported by Dr. H. A. Ingalls, as follows:

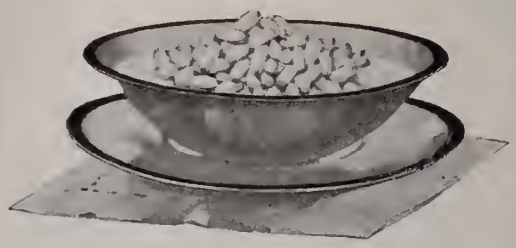
Mrs. C., age 29 years; family history unimportant.

P. H.: Had the usual diseases of childhood. Married at 18; mother of two children (10 and 4). First labor normal. At second confinement within 24 hours began having eclamptic seizures which lasted intermittently over a period of 12 hours, from which she made a good recovery. There were no abnormal urinary findings during either pregnancy. Seven months ago she became pregnant the third time. During this last pregnancy weekly urinalyses were made which showed, at times, a few narrow hyaline casts, no albumen or blood, but much mucus, crystals and epithelial cells; blood pressure, systolic 137.

P. I.: About three weeks ago patient felt numb, with distress in the lower part of right chest. There was no loss of consciousness nor was there muscle spasm; she soon recovered. One week later she had a similar attack, which also passed off as the other. Five days after the last attack she experienced another and similar attack, coming on soon after breakfast. Following this attack the urine showed a trace of albumen, with other findings as above stated. During this attack, in the absence of Dr. Ingalls, Dr. Fisher was called and administered five minims of Norwood's tincture. Twenty-four hours later the patient was removed to St. Mary's Hospital for observation and treatment.

On admittance, T. 98.6, P. 70 and regular.

Orders: Calomel purge. Shortly after one o'clock the next morning hospital reported patient in convulsions. In consultation with Drs. Fisher and Phillips it was deemed imperative that gestation be terminated at once. Under chloroform the fetus and placenta were delivered at the cost of quite an extensive laceration of the cervix, but no perineal tear. Cervix repaired and patient appeared to be in apparently good condition. The placenta showed three areas of degeneration. It is quite remarkable that all through the disease the pulse remained slow and regular. Following delivery the urine did not



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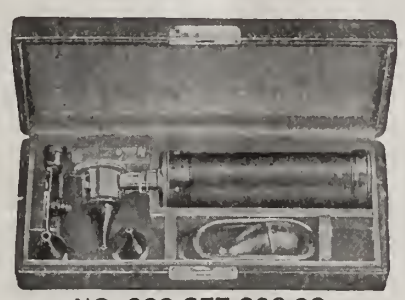
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show any evidence of acute renal condition.

On second day after delivery patient developed a deep hematogenous jaundice, but expressed herself as "feeling very well", and desirous of being returned home, as her children were ill, and she did not like hospital life.

About five o'clock that afternoon she conversed rationally with her nurse and said she was feeling well. A short time later the nurse found she had become irrational, and in the absence of Dr. Ingalls, Dr. Fisher was called in from another room in the hospital and gave a hypodermic of ten minims of Norwood's tincture and notified Dr. Ingalls. A sweat was ordered and on the arrival of Dr. Ingalls at the hospital he was informed that the patient had been quiet, with no spasm of any kind. The pulse was soft and regular and pupils dilated, skin dry and patient unconscious.

In about ten minutes she went into a brief convulsize seizure. The sweat bath not having produced the desired effect, a hypodermic of pilocarpine was given, which was soon followed by moderate sweating. At no time was there a weak or rapid pulse. About an hour before death she became nauseated and vomited a considerable quantity of blood.

The normal liver dullness disappeared during the latter hours of life. Dr. Ingalls was uncertain whether the atrophy of the liver was primary or secondary, as yellow atrophy often occurs in the non-pregnant state as well as in the pregnant, and was of the opinion that the underlying cause in this case must be considered as unknown.

The hour being late, the discussion was very brief, all agreeing with Dr. Ingalls' conclusions.

CHAVES COUNTY (N. M.) MEDICAL SOCIETY

At a regular meeting of the Chaves County Medical Society held in Roswell, N. M., February 12, 1924, the following resolution was unanimously adopted:

Whereas;

(1) Under the Harrison Narcotic Act of 1918, an excessive and now unnecessary war tax is imposed on the medical profession, and

(2) The physician is compelled to pay an income tax on money paid out by him for certain expenses of his profession and is thus taxed on an amount in excess of his net income, and

(3) The physician is now taxed on his earned income at the same rate that he and taxpayers generally are taxed on incomes from investments, speculations, etc.;

Therefore, be it resolved by the Chaves County (New Mexico) Medical Society:

First: This society desires it to be distinctly understood that we are not opposed to the Harrison Narcotic Act itself, nor do we oppose any rate of tax under said act that may be necessary to adequately enforce the same, but we do protest that any tax in excess of the minimum amount necessary to enforce said act is an occupation tax on the physiian and discriminates against the medical profession, seeing federal occupation taxes are not imposed on other professions; and when passed on by the physician to his patients is a tax on the sick and injured.

Inasmuch as this law was enacted for the benefit of the community, and not for the benefit of the medical profession, there is no reason for imposing on the medical profession any greater part of the cost of enforcement than is imposed on any other group in the community.

Second: This society protests the ruling of the Commissioner of Internal Revenue that **"a physician who is away from home in attendance at a meeting of a medical society or while pursuing postgraduate studies is not away from home in the pursuit of his profession, and that the expenses incident to such travel and studies are not ordinary and necessary expenses of the practice of medicine."**

This ruling ignores the fact that such expenses are absolutely necessary in order that the medical profession may be better equipped to scientifically treat the sick and injured, and should be exempt from taxation.

This ruling is inconsistent with the provisions of the law generally as they relate to the practice of medicine.

For instance, a physician may deduct medical society dues paid, but he must pay tax on money expended in attendance on meetings of the same society.

This ruling is further inconsistent, in that, if a physician travels from one place to another to consult with another physician regarding the treatment of a single patient he can deduct traveling expenses; but if he travels between the same two places to consult with a hundred physicians about the best mode of treatment of sickness generally, he is not allowed to deduct expenses.

If a physician travels from one place to another to examine one patient, in order to apply his skill, for the benefit of that one patient, his traveling expenses are deductible; but if he travels from one place to another to engage in postgraduate study in order to make the knowledge and skill thus acquired available to the entire community which he serves, he is not allowed to deduct traveling expenses, but must pay income tax on them.

This ruling tends to discourage postgraduate study and meetings of medical societies and is indeed very poor public policy; inasmuch as medical society meetings and postgraduate study tend to conserve public health.

Such meetings tend to bring about a more patriotic unity, and instead of being taxed should be encouraged.

Third: That this society heartily concurs in the provision of the proposed revenue law making the rate of taxation on earned in-

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(1) Z. Zsigmondy—Anal. Chem. 40 (190), 697; Beitr. Physiol. Path. Chem. No. 3 (1903), 137.
(2) Drs. Moore and Krombholz, J. Physiol., 22 (1908), 54.
(3) Dr. C. A. Herter ("Infantilism from Chronic Intestinal Infection").
(4) Dr. Abraham Jacobi ("The Intestinal Diseases of Infancy and Early Childhood").

comes less than the rate of incomes from investments, speculations, etc.

Such taxation is a tax on the productive activity of the individual and tends to discourage such activity; and since the productivity of the individual may be destroyed at any time, by sickness, or accident, and is surely destroyed by death, it should be entitled to special consideration when determining the rate of taxation applicable to such income.

Be It Further Resolved, That copies of this resolution be filed with the Committee on Ways and Means of the House of Representatives, the Committee on Finance of the Senate, and each of our Senators and Representatives in Congress.

C. M. YATER, Secretary.

Dr. A. A. McDaniel of Lovington was a visitor in Roswell the first week in March.

Dr. Bayard Sullivan of Fort Bayard, N. M., has been elected secretary of the Grant County Medical Society, to fill out the unexpired term of Dr. H. S. Bennett, deceased.

BERNALILLO COUNTY MEDICAL SOCIETY

Albuquerque, N. M.

The regular meeting of the Bernalillo County Medical Society was held Wednesday evening, February 6th. The new president, Dr. David C. Dodds, gave the society a talk, explaining his aims and ambitions for this year. If Dr. Dodds is able to carry out his plans, the society is going to be one that the members cannot afford to miss.

A committee of three were elected whose duty it is to hear and adjust all grievances between members during the year. This committee is composed of Drs. P. G. Cornish, Sr., L. G. Rice and J. A. Reidy.

It was suggested that the society had as members in good standing a few men that should not be members, and it is refreshing to think that someone in the society may start something that will raise the standard.

The subject of newspaper advertising was taken up and it was decided to leave this phase of things up to the above named committee. The state society already has passed a resolution, the gist of it being that newspaper advertising disqualifies a physician for membership in the state society. This no doubt will be the attitude of the committee acting upon local affairs.

MARICOPA COUNTY MEDICAL SOCIETY

(Phoenix, Arizona)

February 2nd Meeting

Held at the Deaconess Hospital, Dr. Charles S. Vivian, president, presiding.

Communication from the Custer County, Okla., Medical Society, transferring Dr. T. T. Clohessy of Buckeye, was ordered referred to the Board of Censors for their approval.

President read a letter from the Medico-Legal Budeau of the A. M. A., addressed to the chairman of the Committee on Public Policy and Legislation. It was suggested that a committee be appointed to draft resolutions in accordance with the suggestions of this letter, to be forwarded as the expression of the society. The committee appointed were Dr. H. R. Carson (chairman), Dr. W. W. Watkins and Dr. Win Wylie.

Announcement was made by Dr. D. F. Harbridge regarding the public meetings in the interest of public health. There are to be meetings in Phoenix, Tucson, Globe and Nogales, in an effort to place before the people the value of legitimate medical practice. It was moved and carried that the society's Committee on Public Policy be appointed, and this matter placed in their hands, with instructions to co-operate with Dr. Harbridge. The committee appointed was Dr. Fred Holmes (chairman), Dr. L. H. Thayer and Dr. Mary Neff.

Time was given Mr. Duffy, an attorney, to explain the situation with regard to prescribing narcotics in this county, and certain dangers which the interpretation of the law by the Federal Court of this district introduces. These dangers came out in the trial of Dr. Aiton, who was convicted on one count of the charges against him for prescribing narcotics illegally. Mr. Duffy's statement was to the effect that conviction in this case opened the way for any doctor in Maricopa County who prescribes more than the usual amount of a narcotic for a person who is not an addict to be indicted under this interpretation of the Harrison Act. The matter was ordered referred to the Committee on Public Policy and Legislation just appointed.

The society then passed to the consideration of two clinical cases, selected from "Cabot's Histories."

The first case was discussed by Dr. Goodrich. The case was that of a seven-year-old girl with paralysis of both legs from old infantile paralysis. A week before she had slipped and fell on a needle which she was carrying in her right hand, puncturing the skin over the right clavicle; the needle apparently made only a superficial puncture. Two days later a small swelling developed at site of injury, which gradually increased in size and tenderness, producing finally a rounded, fluctuating, red and tender swelling. T. 202; pulse 150, leucocytes 26,000. X-ray showed collapse of right lung, with some fluid and air in the soft tissues over the upper part of chest. Operation was performed, but child died next day.

Dr. Goodrich considered the child received in the puncture wound some virulent type of infection. and the principal interest would seem to center around the type of infection. If we do not regard the injury as sufficient to puncture the lung, we are forced back on gas bacillus infection to explain the air in the tissues. There are four or five types

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of bacteria which produce gas; B. of malignant edema; B. aerogenes capsulatus of Welch, colon bacillus, proteus and a psuedo type of B. malignant edema. We can rule out all but two of these, since neither the colon, proteus nor the psuedo type of malignant edema would cause such virulent infection; that leaves malignant edema and aerogenes capsulatus, and many features of the case make us think of malignant edema infection. It is found in the dirt on the floor of houses. If it was this infection, cannot quite understand the expectant treatment for 24 hours. The chest findings could be explained by the infection, with lung collapse. The ease with which the needle was extracted makes us think it did not enter the lung.

Dr. Holmes thinks can hardly count on a history in a child of seven years. This needle could easily have punctured the subclavian vein and entered the pleura and apex of lung. Tme swelling is not the swelling of emphysema, but fluid; thinks that puncture of the vein with slow leak of blood into the tissues, with lung puncture causing the lung collapse, with infection coming later, would explain all the symptoms. Air in the tissues could come from the punctured lung. Does not think that gas bacillus infection quite covers, without lung rupture.

Dr. Goodrich thinks that if the lung is punctured will have emphysema at once; this child sticks needle into the skin and 48 hours later a small swelling appears, and severe symptoms do not appear until nearly a week after the injury.

Dr. Brown thinks that infection might have been carried in and the lung punctured at the same time.

Dr. Mills thinks that gas bacillus infection would have produced gas in the tissues earlier.

Dr. Phillips thinks that a very superficial wound might puncture the lung above the clavicle in an emaciated child; nothing in the case that could not be explained by partial pneumothorax and infection.

The operation performed in this case was a thoracentesis and removal of very foul bloody fluid.

Necropsy showed gangrene of the superior lobe of right lung with atelectasis, and gangrene of chest wall in region of first rib, of the tissue bordering the right clavicle and of the mediastinum extending into the neck. There was no bacteriological report, and it is not impossible that there was a gas bacillus infection, though this was not proven one way or the other.

The second case was discussed by Dr. Gudgel. It was that of a boy, age 11, with shortness of breath and dyspnea, together with swelling of feet and legs. For three years had been having attacks of pains in knees and legs. Six weeks before admission had sore throat and fever; week before admission tonsillectomy was advised because of large, swollen tonsils and infected cervical

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glands.

P. E.: A well-nourished boy with cold and cyanotic skin and an anxious expression, in very great respiratory distress, unable to lie down and on the least exertion becoming cyanosed and prostrated. Chest expansion decreased on both sides. Lungs: Impaired resonance, with moist and sticky fine rales in both bases back and front and in the axillae. Breath sounds over both bases bronchial and markedly diminished in lower anterior right chest. Apex impulse of heart felt outside the nipple line, not particularly forcible. Dullness 5½ inches to the left, 4 to the right. Sounds somewhat distant. A slight systolic murmur heard only outside and just below the left nipple. Slight thrill over precordia felt just to left of sternum. Liver border on level with umbilicus. Marked tenderness over liver. Extremities: Both feet and ankles and region over spine in lumbar region markedly edematous.

T. 98.5°—105. P. 126—156. R. 39—60. B. P. not recorded. Urine: Amount 30 on the one occasion recorded. Sp. gr. 1024—1018. Smoky at one of two examinations, large trace to a trace of albumin at both, full of leucocytes and red blood corpuscles at both, rare granldar casts at the first, many waxy and cellular at the second. Blood: Hgb. 80%—85%. Leucocytes 35,800—36,000. Polynuclears 86%. Reds and platelets normal. Wassermann strongly positive. Non-protein nitrogen 110 mgm. Creatinin 197 mgm.

Patient was put on stimulant treatment. Pericardium was tapped and sterile fluid withdrawn, with marked temporary relief. Fluid appeared in pleural spaces and patient gradually failed and died.

Dr. Gudgel thinks the symptoms point to the heart, although pneumonia must be ruled out. The respiratory difficulty might come from simple dilatation, but there would seem to be a more serious condition than simple dilatation; the increased size and systolic thrill usually means some valvular lesion. The presence of fluid in the pericardium naturally means pericarditis. Endocarditis and pericarditis would explain all the symptoms, dyspnea, passive congestion of lungs and liver; urinary findings could result from this also.

Dr. Watkins thinks the urinary findings plus the non-protein nitrogen must mean nephritis.

Dr. Carson thinks the tonsil infection has produced nephritis.

Dr. Smith thinks that if we could go back two generations and eliminate syphilis, then take out the tonsils and treat nephritis, the patient might have been cured.

Dr. Phillips thinks syphilis would explain the symptoms.

Dr. Holmes recalled a case seen at the Massachusetts General Hospital, where they brought in a patient to have tonsils removed and there was a large chancre on one. If this patient had an acquired syphilis, it would

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1917	440,497
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1911	148,835
1909	105,000

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be about the time for secondaries to occur.

Dr. Brown thinks the deep cyanosis is rather characteristic of pericarditis with effusion; a streptococcus infection in the tonsils going down and infecting the lungs; then becoming systemic, involving heart, pericardium, kidneys and blood, would cover the case.

Dr. Mills thinks the effusion in the pericardium is part of a general anasarca; the feet, ankles and lumbar region were all edematous. Believes the sequence is a streptococcus infection producing pericarditis and along with it an acute nephritis with general edema.

Dr. Goodrich said he has seen a replica of this case, caused by general gonococcus infection, with pericarditis, fluid in chest and nephritis.

Necropsy in this case showed pneumococcus septicemia, subacute pericarditis, serofibrinopurulent pleuritis, hypertrophy and dilatation of the heart, chronic passive congestion. Heart valves were not diseased, layers of pericardium were bound together, the hypertrophy resulting from overwork of heart; microscopic examination of kidney showed acute glomerulonephritis, although gross inspection could not determine whether nephritis was present or not.

Society adjourned at ten o'clock.

ST. JOSEPH'S HOSPITAL STAFF MEETING

Phoenix, Arizona

The staff of St. Joseph's Hospital, Phoenix, Arizona, held its regular monthly meeting on February 7th.

The first case on the program was one in which the staff members were invited to make a diagnosis, a box of cigars being offered to the member who would forecast the autopsy findings.

The case was that of a man, married, age 42, machinist by trade.

His wife died of tuberculosis; had diphtheria 15 years ago and gonorrhea 25 years ago.

Six months ago had a sharp localized epigastric pain and much nausea after supper, gradually disappearing after three to four hours' rest and application of heat. Has had other attacks since of dull pain in epigastrium with nausea and sense of fullness of stomach every two or three weeks, lasting four or five days. Has vomited occasionally. Four months ago had loose, watery movements for two months. Five weeks ago had sharp attack of pain in epigastrium which shifted from side to side; since then has had dull ache and sense of fullness in epigastrium, with nausea. Two weeks ago, after some irrigation in throat, raised a quantity of bright red blood with foam; has been spitting up dark brown blood since; appetite poor; weight 120; used to be 150.

P. E.: Pyorrhea. Fine crackles, with sibilant and coarse rales over upper right chest anteriorly; left chest hyper-resonant.

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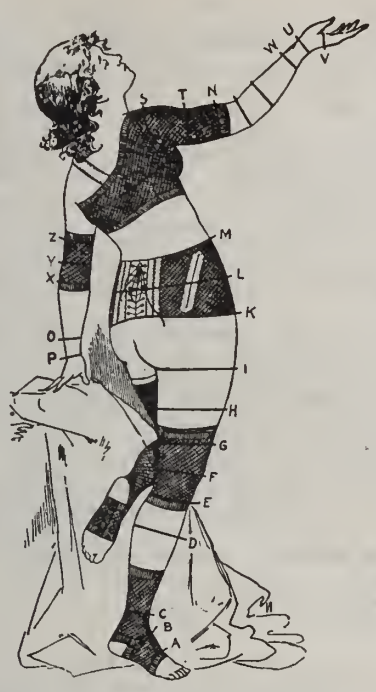
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Every one of these determined factors being commonly associated with the daily intake of food, treatment other than dietetic is rarely necessary or advisable.

Suggestions that point out the procedure to be followed in adjusting the diet to overcome constipation due to the stated causes are embodied in a 16-page pamphlet, which will be sent to physicians upon request. The suggestions offered are based upon careful observation extending over a long period and should be of much service to every physician who is at all interested in infant feeding.

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Fine and coarse rales behind in left base; sibilant rales in right base; no signs of consolidation or cavity. Apex beat in sixth space 10 cm. to left; heart rapid, sounds poor in quality; loud systolic murmur over entire precordia; harsh at base; questionable diastolic at pulmonic. B. P. 100/90.

Abdomen tender; liver edge palpable. Fingers clubbed.

Sputum; neg. for T. B. Urine trace of albumen, granular and hyaline casts. Leucocytes, 4,400, 20,800 and 8,800. Wassermann negative; two blood cultures negative.

X-ray: Heart enlarged to left. No chest shadows characteristic of tuberculosis. Barium meal shows crater defect in duodenum, with six-hour residue. Appendix region not examined.

Several diagnoses were made—tuberculosis, heart disease, gallstones, duodenal ulcer, cirrhosis of liver.

The doctor who handled the case not now being in Phoenix, Dr. Watkins discussed the case.

The history of the case would suggest an abdominal lesion—ulcer, gallbladder, kidney stone or appendicitis. Hemorrhage would bring the possibility of tuberculosis into the foreground.

The physical examination centers the attention on the chest and heart; the rales and history of exposure, with hemorrhage would be sufficient for many doctors, but the predominance of basal signs would make one pause before diagnosing tuberculosis. There is evidently a heart lesion, not because of the murmur, but because of the enlargement. Clubbed fingers have a significance, and point to lung or heart disease.

Laboratory findings do not add a great deal, except the negative sputum and the negative x-ray findings would, for me, rule out tuberculosis. The barium meal would seem to clinch the diagnosis of upper abdominal lesion, probably duodenal ulcer.

Final diagnosis would be duodenal ulcer and organic heart disease—probably in mitral valve.

Patient grew progressively more dyspneic, in spite of stimulation, and finally died with symptoms of heart decompensation.

Autopsy showed the heart enlarged, chronic and acute endocarditis with vegetations on the mitral and aortic valves. Lungs, no tuberculosis, with numerous very small infarcts. There was an old adherent pleura on right side. Liver passive congestion; kidneys normal; spleen with infarcts. Stomach and duodenum without evidences of disease. No ulcer present. Chronic appendicitis, with adhesions and concretions.

No member won the cigars.

Case 2 was presented by Dr. Felch. It was case of a man, aged 64, who, three weeks before, had suffered fracture of the radius.



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Repeated efforts to hold it in position failed, and union had not begun at end of three weeks. Failure to hold bones in position and seeming delay in union led to operation of Lane plating. At the present time bones are still in good position, but there is no sign of callus as yet shown by x-ray. No particular reason for delayed union, except his age and possible syphilis.

Dr. Beauchamp states that surgical books tell us that these cases should not be plated short of six months or a year.

Dr. Carson said that Murphy used to teach that keeping the ends immobile did not assist callus formation; recalls a man 60 years old who had a fracture which would not unite and used to rub the ends of the bones together and use hyperemia. Blood can be injected between the ends of the bones.

Dr. Watkins stated that there have been some interesting observations on the effects of high voltage x-ray treatments and the effect of these on bone formation. It is well worth trying in such cases.

Dr. Sweek thinks it bad practice to do open operation on any fracture when there is possibility of getting results without this. Sometimes callus is not laid down for many months, and fractures of leg or forearm should be given several months and every other means exhausted to get the bones to unite before using open operation. Only when you see that the union is going to be vicious and the functional result bad is open operation called for. In the open operation, it is better not to introduce a foreign body.

Dr. McIntyre: According to the Mayos, a fracture is not regarded as a non-union until two or three years have elapsed; until then, it is regarded as delayed union.

DR. Felch: Patient persisted in getting the bone out of position, and operation was done to hold bone in place and cut down time in the hospital.

Dr. Wylie recalled a case of fractured humerus with perfect apposition which, at the end of three months, had not grown callus. Put in a bone splint across the fracture; after a month, x-ray showed a liatle callus on one side; after another month perhaps a trifle more; after six or eight months no further increase in callus. While in Los Angeles, received telegram from attorneys of a meeting next day. Came back to prevent settlement, and found they had settled for $4,500. Some doctors had told him his arm was worthless; he had demonstrated absolutely that he would not grow bone. One year later, that man was working regularly as a mucker and his arm is just as good as it ever was. Would not grow bone, but did, time being the only thing necessary.

Dr. Felch stated that he did not approve of plating everything that comes. Now and then plates one. Does not think the plate will interfere with callus formation.

Dr. McLoone presented the third case, the history of which was as follows:

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Just the cream of the oats

Merchant, age 35; mother and father living and well; married and has three children.

In March, 1923, had a severe head cold, following the acute stage of which there was a chronic nasal discharge. Post-nasal dropping and frequent sore throat. Following a severe attack of rhinitis began to have epilepsy, attacks occurring once in two weeks until they were made less frequent by treatment which was started in May; discontinued treatment in July and had another attack after three or four days. Went to Silver City in April and Dr. Bullock examined his lungs; found negative. Tonsils removed in May. About middle of August began to have pain in left ear; drum ruptured and discharge lasted for two weeks, then ceased. Three weeks later, in early part of September, right ear began to pain; says pain was almost constant and describes it as being deep in ear. Pain was still present when seen on October 14, 1923.

P. E.: Ears, whisper, A. D. 8 ft. A. D. C2—A"5—B 16". A. S. 15 ft. A. S. C2—A 20" 10".

Weber lateralized to right.

Right drum retracted and thickened; cone of light diminished. Some retraction of left drum head, with adhesions. Result of tonsillectomy, good.

Sinuses: There is a marked deviation of septum to left; no pus; on right, some pus

on ant. end of middle turbinate. Pus coming from sphenoethmoid recess; by washing right antrum, one-half ounce of sero-sanguineous discharge obtained.

Right ear canal was swollen and external otitis was treated; this subsided in two days, but pain continued. Drainage of right antrum and sphenoethmoid regions gave no relief from pain. On account of the subacute inflammatory thickening of Schrapnell's membrane, incision was made in right ear drum; no pus, only a slight amount of blood.

X-ray: All right sinuses showed a slight relative increase in density as compared with the left. The mastoids showed a well-developed pneumatic type of cell, but with loss of definition and increased density. X-ray would indicate low-grade infection in both mastoids.

There was no fever at this time; a latent mastoid abscess was suspected on the right, and exploratory incision advised. Patient had to return home, however, and was not seen again until November 16th; he then stated that three days after returning home his right ear began to discharge. His chief complaint now was deep seated pain about one inch below tip of mastoid, along the border of the right sternocleidomastoid muscle. Slight pulsating discharge from right ear; very little tenderness over mastoid antrum. Very little sagging external to Shrapnell's membrane. Hearing in this ear had diminished to a whisper at four feet. All the sinuses were negative, except for a slight purulent discharge from the posterior ethmoidal cells on the right.

X-ray about one month later stated that the difference in the two mastoids was not great; slightly more haziness and loss of definition on the right. Probably pathology on both sides, with more evidence of recent infection on right.

Operation November 19th. Right mastoid opened in usual manner. Pus found in antrum with granulations; granulations in tip and free pus under pressure. Lateral sinus covered with large necrotic mass; gutter cells involved. On removing granulation tissue and necrotic mass over sinus, the sinus was perforated; free bleeding from both ends. Packed with iodoform gauze and drainage established; wound closed in usual manner.

Dr. McLoone stated that the interesting feature of this case was that it illustrates that we can have very severe involvement of the mastoid with very few symptoms. This man had a perisinus abscess following mastoiditis; had practically no fever; no leucocytosis, very little tenderness; on going in found very little pathology in the mastoid cells, but an abscess around the sinus.

Have recently had a second case of perisinus abscess. This was a woman who had pain in the ear complicated by external otitis, tenderness very deep, some fever, no sagging of the wall, no signs of pus under pressure. On opening, cortex was dense, practically nothing in the antrum. Decided not to enter the antrum and evacuated one or two drachms of pus from around the sinus. Took culture from the antrum and found it negative for organisms. Acute infection had become chronic, was walled off both anteriorly and posteriorly, with little symptoms of mastoiditis except over the tip. Without operation she would have had thrombosis. The x-ray showed positive mastoid involvement. If there had been doubt, would have had repeated x-ray examinations. In a recent case, had three x-rays at intervals, which showed a gradual clearing without operation.

When in doubt, especially with a history dating back six or eight weeks, am well convinced of the value of the x-ray examination in determining mastoid pathology.

In the first case had a symptom which was very suggestive of trouble in the internal jugular; the lateral sinus was covered with granulations and he undoubtedly was having a phlebitis with some infection of the jugular. Otologists are taking a great deal of note of atypical mastoiditis and by operating these cases early we avoid lateral sinus thrombosis. This patient should have been operated in August, because he was positively septic then.

Dr. Fahlen inquired whether transillumination would be of value in such cases.

Dr. McLoone answered that it is very satis-

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factory in mastoid work. Eburnation of the cells immediately around the canal would give a dark shadow and be very misleading. The x-ray is far superior. In the second case, the x-ray report showed diseased cells posterior and high up in the process, and this was borne out by the operation. Another very important point in the x-ray examination is to determine the position of the lateral sinus, whether it is forward or back. Operation on the mastoid is justifiable if you have at least one of the cardinal symptoms of mastoiditis.

Dr. Fahlen: In one case you stated the pulse was 70. At any period was the pulse slowed up by meningeal involvement?

Dr. McLoone stated that in the first case the pulse ran around 70; at one time ran as low as 60; temperature ranged from 97 to normal.

Dr. Fahlen stated that if the pulse drops, it would be a rather significant symptom, though not one to be waited for.

Dr. McLoone stated that, as a rule, as in the second case, the pulse and temperature are up; they are inclined to have the septic type of infection, rapid pulse and some fever, which the first case did not have. In both cases the classical signs of mastoiditis were absent, but still with dangerous pathology in the mastoid. If you have a slow pulse, you would begin to think of lateral sinus abscess; you have ruled out sinus thrombosis, because there is no fever, no chill, no rise in temperature, no leucocytosis, and negative blood culture. Had no reason to suspect lateral sinus thrombosis in the first case, until he did not do well after the operation; then began to suspect possible brain abscess, or atypical sinus thrombosis because of the tenderness along the sternocleidomastoid muscle, which is a rare symptom, but a possible one.

Dr. Neff asked how to explain the epileptic seizures. Answer, that they were hard to explain; occurred first after an attack of influenza; while in the hospital received no treatment for epilepsy and had no seizures until about six weeks following operation. Did not hope to cure the epilepsy by operation, because we know that when a patient is operated on for anything, his epilepsy frequently ceases for a time due to the psychological effect of the operation.

Dr. Neff inquired about accidental severing of the facial nerve in mastoid operations. Dr. McLoone replied that this could occur at the hands of the very best men, when there is destruction along the course of the nerve involving the nerve canal. There is also at times an abnormal course of the nerve.

Dr. Schwartz was on the program to present some cases of foreign body in the globe and describe method of extraction, and method of handling bodies which could not be extracted. Dr. Schwartz was not present, and this was postponed until the next meeting.

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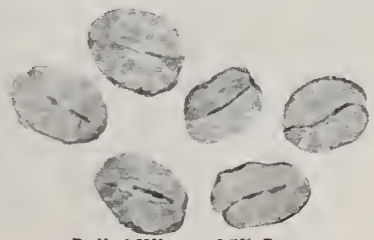
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STAFF MEETING ARIZONA DEACONESS HOSPITAL

February 23, 1924

At the regular meeting of the Medical and Surgical Staff of the Deaconess Hospital, held February 23, the following members were present: Drs. Thomas, Watkins, Mills, McIntyre, Couch, Felch, Shelley, Schwartz, Bailey, Wilkinson, Goodrich, Hicks, C. B. Palmer, McCall and Goss. In the absence of Dr. Ellis because of illness, Dr. Thomas was elected chairman and presided over the meeting.

A resolution from the Medical Council protesting against the action of the Arizona State Nurses' Association, in a certain matter vital to the hospital training school, was read, and the staff voted to approve the Council's action and instructed the secretary to send a copy of the resolution to Governor Hunt, with the names of the staff accompanying it. (It is interesting to note that the Nurses' Association rescinded its action two days later).

Dr. Bailey presented an interesting case of persistent hemorrhage following sub-mucous resection in a woman just entering the menopause, which hemorrhage did not begin until seven days after operation. The bleeding was not confined to the cut surfaces, but included the whole mucous membrane of the posterior nares.

Dr. Schwartz remembered a similar case from El Paso, in which the cause of the hemorrhage was not discovered.

Dr. Felch's case report concerned a boy of ten years who entered the hospital with the diagnosis of acute appendicitis. Operation revealed many tumor masses involving the mesenteric vessels and the small gut. The abdomen was filled with a brownish colored fluid and the tumors were reddish gray in color. The masses resembled carcinomata, but were not sectioned due to their close relation to the blood vessels. After operation much distention was observed, but the wound closed in a few days.

After discussion of both papers, the staff adjourned to meet the last Saturday in March.

H. L. GOSS, Secretary.

EL PASO COUNTY NEWS ITEMS

Dr. J. W. Tappan is the proud father of another boy, Robert Lewis, born December 5, 1923.

Dr. Will P. Rogers was married to Miss Lula B. Adams December 26, 1923.

Announcements have been received of the marriage of Dr. W. A. Toland to Miss Grace B. Terrill of Boston, Texas, November 26, 1923.

Announcement is made of the marriage of Dr. Elliott C. Prentiss to Miss Ethel J. Owbridge, at the home of the bride's parents, in Santa Monica, Calif.

Dr. J. M. Treilo, formerly physician to the Mexican-Northwestern Railroad for more than two years, is now physician to the William Randolph Hearst Ranch at Babicora, Chihuahua, Mexico. Dr. Treilo spent a few days in El Paso during December.

Dr. Harvey S. Kinard has opened offices at 504 Roberts-Banner Building, for general practice.

The El Paso Masonic Hospital has, since January 1, 1924, been entered upon the list of standardized hospitals by the American College of Surgeons.

The Waite Pathological Club is a new institution for medical study recently organized and now in full sway of its functioning. Among the few rules that govern the body are, that its membership shall be limited to twelve and its members shall not be absent from more than three consecutive meetings. It is a live organization, very enthusiastic in the study of medicine, giving themselves a continual postgraduate course, as it were.

Briefly, the work they have outlined for themselves is the careful and complete history taking of their cases and, when available, autopsies are done and the pathological tissues studied in the laboratory. In this way they have a complete study of the cases from the earliest history to completion.

DR. THOMAS WATKINS of Bisbee, Ariz., was a visitor in Phoenix during February, coming for the purpose of having some eye examinations made.

DR. ALBERT KNAPP of Chicago, formerly medical director of one of the large hospitals in Dusseldorf, Germany, was a visitor in Phoenix in February, coming as the private physician of a patient who was left in Phoenix. Dr. Knapp's special line of work covers the field of the heart and lungs.

DR. WM. C. BANE of Denver, Colo., Professor of Otology and Laryngology at the University of Colorado Medical School, has been spending several weeks in Phoenix, where he has been frequenting the golf course of the Country Club.

DR. L. M. TOMPKINS, formerly located at Gilbert, Ariz., has moved to Globe, where he is associated with Dr. W. W. Horst.

DR. T. H. SLAUGHTER of Miami, Ariz., is reported to have moved from that city to Long Beach, Calif.

DR. CROSBY of Yuma, Ariz., was a visitor in Phoenix during February, coming on professional business.

DR. JOHN E. BACON of Miami, Ariz., addressed the Kiwanis Club of Phoenix, by invitation, on March 5th, the subject of his talk being "The Copper Industry of Arizona".

DR. TOLER R. WHITE of Kingman, Ariz., president of the smallest and livest medical society in the state, was a visitor in Phoenix during the latter part of February.

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Arizona State Medical Association Meeting in Phoenix April 24, 25 and 26. See program announcement.

SOUTHWESTERN MEDICINE

VOLUME VIII APRIL, 1924 No. 4

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents See Advertising Section Page 1

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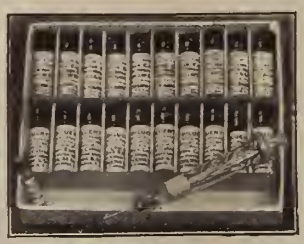
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FOR LIST OF ARIZONA ASSOCIATION MEMBERS SEE ADV. PAGE 3

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VOL. VIII. APRIL, 1924 NO. 4

CONTENTS

ORIGINAL ARTICLES

LIVER FUNCTION AND LIVER FUNCTION TESTING 157
Chester R. Haig, Major, M. C., U. S. A., Fort Bliss, Texas.
EMBOLIC GANGRENE OF THE ARM; REPORT OF A CASE 163
James R. Moore, M. D., Clemenceau, Arizona.
UTERINE PROLAPSE AND ITS TREATMENT 164
James C. Masson, M. D., Rochester, Minnesota.
(Discussion)
SEPTIC THROMBOPHLEBITIS OF THE LATERAL SINUS FOLLOWING SUPPURATIVE OTITIS MEDIA AND MASTOIDITIS—REPORT OF FOUR CASES 168
Ancil Martin, M. D., and W. A. Schwartz, M. D., Phoenix, Arizona.
(Discussion)
DISCUSSION OF PROPOSED ACT AUTHORIZING THE COURT TO APPOINT MEDICAL EXPERTS 170
Win Wylie, M. D., L. B., Phoenix, Arizona.
(Discussion)
ORTHOPEDIC PRINCIPLES IN INDUSTRIAL SURGERY 176
John E. Bacon, M. D., Miami, Arizona.
CASE REPORT 179
P. E. McChesney, M. D., El Paso, Texas.
CASE REPORT 180
J. W. Tappan, M. D., and E. B. Rogers, M. D., El Paso, Texas.

EDITORIALS AND NEWS

THAT QUESTIONNAIRE 181
PROGRAM OF THE ARIZONA STATE MEDICAL ASSOCIATION MEETING 184
YAVAPAI COUNTY MEDICAL SOCIETY—MARICOPA COUNTY MEDICAL SOCIETY 186
EL PASO COUNTY MEDICAL SOCIETY 187
ST. JOSEPH'S HOSPITAL STAFF MEETING (PHOENIX) 189
PERSONALS AND NEWS 200

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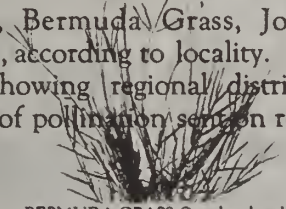
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LIVER FUNCTION AND LIVER FUNCTION TESTING*

CHESTER R. HAIG, Major, M. C., U. S. A., William Beaumont General Hospital, Fort Bliss, Texas.

The liver is the largest single organ in the body and one of the most important, its presence in a state of functional activity being necessary not only for a condition of health, but even for a continuation of life itself. I like to quote the following remarks of William J. Mayo in speaking of the paramount importance of the hepatic function:

"The liver was recognized, even by the ancients, as the king of organs, standing as a buffer, on the one hand, between the general circulatory system and the gastro-intestinal tract, and, on the other hand, between the general circulation and the spleen, which filters from the blood micro-organisms and toxins that it is unable to destroy, sending them to the liver through the portal circulation for destruction and detoxication. The liver detoxicates chemical poisons, such as chloroform, phosphoms and arsenic, as well as biochemical poisons produced in the body. Yet for many reasons we know little concerning the functions of early pathologic conditions of the liver. Its concealed situation prevents us from accurate means from without of early diagnosis. Its power to regenerate injured cells and form new cells is not equaled by any other organ of the body, and its enormous margin of safety prevents us from knowing just what is taking place in the earlier stages of hepatic disease, and the appalling nature of the pathologic changes when they are sufficient to enable physical demonstration, has made the liver an organ of mystery and conjecture. I venture to predict that the next few years will bring forth productive research demonstrating that the causes of many of the changes in the so-called vital organs which lead to death do not primarily originate in the nervous system, heart, lungs or kidneys, but are the result of hepatic insufficiency leading to insufficient purification of the blood, thus making possible much sound prophylaxis.

"The functions of the liver are: (1) defense against invasion of the body by micro-organisms and the detoxication of toxic products brought to the liver from the portal circulation, (2) fat metabolism, (3) protein metabolism, (4) carbohydrate metabolism, and (5) bile function."

Howell, in speaking of the liver, says:

"Its functions are manifold, but in the long run they depend upon the properties of the liver cells, which constitute the anatomical and physiological unit of the organ, although there is histological evidence that some of the endothelial cells of the capillaries of the liver have marked phagocytic properties and it is possible that their activity may play a contributory part in some of the functions of the liver, for example, in the destruction of the red corpuscles that precedes the formation of bile pigments. The liver cells are seemingly uniform in structure throughout the whole substance of the liver. The physiology of the liver cell falls naturally into two parts—one treating of the formation, composition and physiological significance of bile, and the other dealing with the metabolic changes produced in the mixed blood of the portal vein and the hepatic artery as it flows through the lobules. In this latter division the main phenomena to be studied are the formation of urea and the formation and significance of glycogen, but it cannot be doubted that the liver possesses other important metabolic functions which at present are imperfectly understood, such, for example, as its relations to the production of fibrinogen and antithrombin."

(*Read before the El Paso County Medical Society, at El Paso, Texas, Nov. 5, 1923.)
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Boucart in Gynecology and Obstetrics, Paris, speaks of puerperal infection and insufficiency of the liver. He considers the liver of primordial importance in combating infections and claims that liver functioning flags because of inadequate blood supply. The portal circulation begins and ends in capillaries and depends on changes in abdominal pressure to force along the blood. As a therapeutic measure he uses light manual vibratory massage of the region below the liver for twenty to thirty minutes.

Hess, abroad, and Napoleon, of Boston, emphasize the importance of the liver as an organ which protects the right heart from congestion, taking up a large amount of blood during venous engorgement of a decompensatory heart.

Mann and Magath of the Mayo Foundation have persisted in their experimental studies of the physiology of the liver and after studying the effect of total liver extirpation have studied the effect of pancreatectomy in conjunction with liver function in relation to carbohydrate metabolism. They say:

"Previous studies have shown that (1) a characteristic group of symptoms followed by death develops after total removal of the liver; (2) these symptoms are associated with decreasing blood sugar and various symptoms and death occur at definite blood sugar levels, (3) the injection of glucose after symptoms develop abolishes them and restores the animal to normal, and (4) if glucose is administered after hepatectomy in amounts sufficient to maintain the blood sugar level at normal or above normal, the characteristic symptoms do not develop. It has been emphasized by our previous experiments and those of other investigators that only a small portion of the normal liver is necessary for the maintenance of its function. The results of the experiments on dogs where liver, or pancreas, or both have been removed, are very definite as regards the liver. They prove conclusively that the liver is absolutely necessary for the maintenance of the blood sugar level in the hyperglycemic animal in the same manner as in the normal animal. The increase in blood sugar following pancreatectomy is dependent on the presence of the liver. Without an adequate amount of functionating liver tissue the increase in blood sugar following pancreatectomy could not occur. We have thus proved in another way that whatever may be the process of carbohydrate metabolism, the liver has a vital part in that process. The results of the experiment do not show why the loss of the pancreas should cause the rise in the blood sugar, but they do prove that the presence of the liver is necessary for this rise.

H. Rogers, in the Medical Press, Paris, speaks of the function of glycogen and of the value of sugar in operative cases. He states that glycogen is not only a reserve, but enters directly into most of the transformations (chemical) accomplished by the liver. It is an indispensable element in the liver in handling ketone products, fats, derivatives of protein, toxic substances and even micro-organisms. Glycogen is far more than a mere testimony of liver activity, wherefore the importance of an ample supply of foods from which the liver makes its glycogen. Sugar is indispensable in infections and intoxications and in all conditions tending to induce acetonemia and acidosis. The favorable action of subcutaneous or intravenous injections of a solution of glucose is due in large measure to the reinforcing by it of the functions of the liver.

Chevrier asserts that by taking 150 gm. of sugar the evening before and again the morning of the operation, anesthetics are less liable to induce liver disturbance. He follows the operation with a sugar solution by rectal drip. Among experiments he describes are some in which .25 c.mm. of an anthrax culture, injected into a peripheral vein, killed the rabbit in 38 hours, while a dose 64 times larger injected into a branch of the portal vein failed to induce the slightest symptoms, testifying to the complete annihilation of the anthrax bacilli by the liver.

TESTS

The tests for liver function are as numerous as the advertised drugs having curative properties in diseases such as tuberculosis, where there are no known specific remedies. These tests run the gamut of the various liver functions and then run on into the purely arbitrary tests for dye excretion. Various dyes have been used, but the one most persistently experimented with in this country is the dye phenoltetrachlorphthalein, and

the history of its application to liver function testing carries a certain degree of interest.

In 1909, Abel and Rowntree determined by pharmacologic studies that phenoltetrachlorphthalein was excreted almost entirely by the liver and when injected intravenously is non-toxic. Rowntree, Hurwitz and Bloomfield and Whipple, Mason and Pughthal, in 1913, in the Bulletin of John Hopkins Hospital have articles showing experimental work with this dye wherein following injections of the dye the stools were collected for 24 to 48 hours and the amount of dye carefully estimated and they showed that the phenoltetrachlorphthalein output paralleled the amount of liver injury. In 1914, Krumbhaar, in summarizing the status of liver function tests, conceded that although no satisfactory single test for the final capacity of the liver has yet been accepted, the tetrachlor test of Rowntree promises the greatest value. In 1916, McNeil introduced a distinct improvement in the test by inserting the duodenal tube into the duodenum before the dye injection and, in 1921, Aaron, Beck and Schneider modified the technic and introduced a stable preparation of the dye and estimated the phenoltetrachlorphthalein elimination in the bile. They established the drip method of collection of bile from the duodenum by siphonage with the duodenal tube by the administration of 500 c.c. of water by mouth. They stressed the importance of the time of maximum color appearance and they considered the quantitative estimation of the dye excretion of little value. In 1922, P. F. Williams showed fairly constant end reactions in normal pregnant women and variable results in pathologic cases.

V. R. Deakin and E. A. Graham, Washington University, St. Louis, in an article in March, 1923, give an extensive bibliography and a summary of functional liver testing wherein they conclude that phenoltetrachlorphthalein is not a satisfactory substance to use in an hepatic functional test based on the quantitative estimation of its output in the bile; that there are too many factors which tend to prevent a complete collection of liver bile by the duodenal tube to warrant its use in such a procedure. In four dogs in which the dye was injected intravenously it was recovered in the duodenum in from 10 to 15 minutes after injection. They say:

"If the recent prominence which has been given the subject of non-surgical biliary tract drainage in medical literature by Lyon, Smithies, Einhorn, and others has done nothing else, it has served to emphasize the ease with which duodenal intubation may be accomplished, and this in turn has stimulated a revival of interest in what is still generally considered to be a closed chapter in the history of the liver and duodenum, the question of an hepatic functional test."

Working along similar lines, Piersol and Bockos, University of Pennsylvania, draw conclusions which are more favorable to the value of the test. They found in a series of fifty cases that, in a general way, a delay in the appearance time of the dye was proportionate to a decrease in the output and conclude that the estimation of the dye output in two hours is of more importance than recording the appearance time, although both should be considered. They found that in grossly pathologic livers the appearance time of the maximum color was twice as long as that in normal cases (23.2 minutes, as compared to 11.6 minutes), and the dye output averaged but one-eighth of the output in normal cases (2.71 mgm., as contrasted with 22.4 mgm.).

In 1922, S. M. Rosenthal did some original work and developed an improved phenoltetrachlorphthalein test for liver functioning in which he attempted to measure not what normal and pathologic livers would excrete, but how much they would not excrete; in other words, how much was retained in the blood plasma. He injected 5 mgm. per kilo of body weight and found that this dosage was removed from the blood stream very rapidly; where livers were normal, from 2 to 6 percent was found present in the blood plasma 15 minutes after injection and practically com-

plete disappearance of the dye took place in 40 to 60 minutes. In liver disease a high percentage of the dye was found in the blood plasma for many hours. He concludes that it is probable that the test gives an index of the total amount of functioning liver tissue. He claims that clinical results have fully borne out experimental work; that results are quantitative and it is believed they give an index of the functional capacity of the liver. He found further that no dye was excreted in the urine in normal and control cases, whereas in hepatic disease from traces to 4 percent was usually found in the urine, but that the amount of the dye in the urine did not parallel the degree of retention in the blood. In performing the tests he noted no reactions or untoward effects except that transitory induration of vein wall at site of injection was frequent and in two cases there was localized thrombosis persisting for several days.

H. H. Rosenfield and E. F. Schneider of Boston have an article in the J. A. M. A. for March 17, 1923, in which they summarize the history of the phenoltetrachlorphthalein testing for liver function and strongly indorse it in pregnancy and the toxemias of pregnancy. They summarize their experience essentially as follows: 1. The phenoltetrachlorphthalein test has been used to measure liver function both in normal and in toxic cases of pregnancy. 2. Normal cases of pregnancy show a curve coinciding with that of normal non-pregnant cases, suggesting that the so-called "liver of pregnancy", with its various physiologic changes, shows no actual impairment of function. 3. Toxemias of pregnancy, including eclampsia, show a definite relation between the degree of liver impairment, as measured by this test, and the degree of toxicity, as evidenced by the clinical picture. 4. Results obtained in several cases suggest that this test is a more accurate index of existent toxicity than variable clinical symptoms are, and that it may be possible by means of this test to anticipate the clinical picture in forming an opinion as to the degree of toxicity existent at a given time. 5. Toxemias of pregnancy, including eclampsia, show definite liver impairment, and subsequent to relief from toxic symptoms there is a return of liver function to normal limits.

They believe that this test gives a quantitative index of functional capacity of the liver, and that in the toxemia of pregnancy it will aid greatly in serving as an index of treatment and will assist in determining the time at which therapeutic abortion or induction of labor should be performed in cases in which these measures may become necessary.

TECHNIC OF THE TEST

About 8 c.c. of blood is withdrawn for preparation of colorimetric standards and 5 mgm. of dye for each kilo of body weight injected intravenously (1 c.c. of the dye solution equals 50 mgm. of the disodium salt, and it is prepared in ampules by Hynson, Westcott and Dunning). At the end of 15 minutes, one hour and two hours from 2 to 5 c.c. of blood are withdrawn from the patient and placed in small test tubes. These specimens are allowed to cool for one hour and are centrifuged and the clear serum retained for testing for dye remaining in the blood plasma.

For colorimetric comparison standards are prepared as follows: It is estimated that the blood plasma contains 10 mgm. of dye in 100 c.c. as a result of the injection of 5 mgm. for each kilo of weight, and taking this as the maximum the blood can contain, we say it represents 100 percent, and we make a solution therefore of 10 mgm. of dye in 100 c.c. water as the starting point for color standards. From this, dilutions are made to represent 100 percent, 80 percent, 40 percent, 20 percent, etc., as desired, and of these 0.2 c.c. are added to 0.6 c.c. of plasma taken before the dye injection in uniform sized test tubes, thus making 25 percent, 20 percent, 15 percent, 10 percent, and 5 percent, etc., standards. Three drops of 5 percent sodium hydroxide is added to each standard and to same quantity

of serums being tested in order to bring out the full color of the dye. By simply matching the colors by comparison in a good light, using the naked eye, sufficiently accurate readings can be made of the amount of dye actually present in each specimen compared to the total possible amount, and by charting the readings at the end of 15 mintes, one hour, two hours, and longer if desired, a graph can readily be drawn to visualize the results.

The improved phenoltetrachlorphthalein test of liver function appears by all odds the most satisfactory and least troublesome of all the many tests that have been used from time to time and only the future will show whether this test will be relegated to the realm of oblivion as the nine hundred and ninety-nine tests always are or whether it will be the one in a thousand to stand the test of time and meet with g e n e r a l acceptance throughout the medical world.

In considering tests for liver function I would like to mention a few thoughts which the French and German workers have recently brought to the fore. On the other side of the Atlantic it appears that liver function has been in the conscious mind more than with the American physician. Hetenyi, in German Archives for Clinical Medicine, Leipzig, reports that with pathologic conditions in the liver the synthesis of urea from ingested ammonium salts takes two or three times as long as usual. In Paris, Hatieganis tests with intramuscular injection of indigocarmine show retardation of excretion in bile in pernicious anemia and cirrhosis and no stain in catarrhal jaundice and a delay of four to six weeks before dye is excreted, even though bile pigments were abundant earlier in this condition. A number of experimenters claim good results with indigo carmine, but with methylene blue the results have been generally unsatisfactory and the test (excretion of methylene blue in the bile after ingestion of .002 gm. by mouth) is considered practically useless.

In attempts to determine liver function the feces and urine have been examined for the presence or absence of stercobilin, bilirubin, urobilin, and the biliary salts. Determinations have been made of the glycogenic and glycolytic functions, the proteoytic function, the proteopexic hemoclasis crisis test of Widal, and various blood examinations.

Hetenyi determined bilirubin in blood and bile and considers 6 to 20 mgm. in 100 c.c. as normal for bile and up to 2.2 mgm. in 199 c.c. as normal for blood.

Filinski, in Warsaw University Medical Clinic, believes that relative rise in the globulin content of the blood serum may be a sign of insufficiency of the liver.

Hecht and Noble tested liver function in children. They concluded that the gelactose tests did not give reliable results, but that the synthesis of camphor glycuronic acid was constant, with pathologic cases giving low values.

Hesse and Havemann recommend the use of several tests for liver function, as all functions are not necessarily affected in each case. They have had comparatively good results with chromocholoscopy after injection of indigo carmine. They found that the Widal hemocasis test was good and that the use of sodium lactate was useful, as by the ingestion of 15 grams the blood sugar increased over 15 percent.

M. Roch, in the Medical Review, Geneva, says that a normal liver transforms 4 cg. sodium salicylate taken an hour after breakfast so that none can be re-found in the urine during the five following hours. With insufficiency of the liver there is a positive response when urine is added drop by drop to a 1 percent solution of ferric chlorid. A violet cloudy zone at contact of fluids is the positive reaction. The salicylate induces the formation of glycuronic acid in the liver. The findings were constantly reliable in 100 patients tested.

Reference to the hemoclasis test of Widal has been of very frequent occurrence in the medical literature, es-

pecially abroad, during the last few years. The test essentially is based on a drop in leucocytes with altered percentage of type following after the ingestion of a glass of milk when fasting. J. Oddo and P. Borie, in the Medical Press of Paris, have used this test as a control in organotherapy in liver disease. They report the details of nine cases of liver disease, including cirrhosis, jaundice during salvarsan administration, secondary luetic jaundice and catarrhal jaundice, in all of which cases 2 gms. of pulverized liver tissue was given daily. The digestion hemoclasis test was positive in all, i. e., there was the constant drop in the number of white blood cells after ingestion of a glass of milk while fasting. After six or seven days of this organotherapy the hemoclasis test became negative, but on suspension of liver treatment the reaction became positive anew, and could be banished again by resumption of the organotherapy. This is not only of theoretic interest, but suggests the advantage of giving liver temporarily to remedy a transient insufficiency of the liver after general anesthesia or during arsenical treatment of syphilis. They advise beginning the administration a few days before and continuing a few days after the operation or arsenical injections. In their experience the hemoclasis crisis never failed to disappear under the influence of the liver treatment, in the moderate dose of 2 gm. a day, regardless of the severity of the liver disease. Maurice disputes Widal's test digestive leucopenia as evidence of liver insufficiency, believing that the number of leucocytes normally fluctuates in such a wide range that it is scarcely wise to assume the liver is deranged when the leucocytes drop during digestion of a glass of milk taken fasting.

Biscons and Rouzaud, in Revue de Med., Paris, stress the importance of blood examination for glucose, cholesterin and urea. They say hypercholoresterimemia is to gall stones what uricacidemia is to gout.

The Mayos have reduced their mortality figures in cases of obstructive jaundice by a careful preoperative preparation of the patient to improve blood coagulability. In France, P. Emile-Weil and others have interested themselves in the question of bleeding and blood coagulation in liver conditions. They find that when the liver is seriously pathologic the blood is profoundly altered and coagulation does not occur as normally. Weil and his coworkers list seven abnormal features of coagulation in liver disease and call this the syndrome hemocrasique des hepatiques and state it can be estimated by the bleeding time. This is exaggerated and irregular with liver disease and is one of the earliest signs of any infection or intoxication modifying liver functioning. The blood coagulates less readily, there is less retraction of the clot, and the clot crumbles or is redissolved, all of which is manifest in the changes in the bleeding time. The curve of the bleeding time can be instructively supplemented by determining the fibrinogen content, refraction, and the viscosity of the plasma, but even without these the bleeding time curve alone will throw light on important functions of the liver hitherto left unexplored in the clinic. The bleeding time was recorded in 100 cases of liver affections. Instead of the normal three minutes, the bleeding continued longer and the bleeding time was variable. Positive findings were accompanied by cholemia, urobilinuria, cholaluria, and the digestive leukopenia of Widal's hemoclastic crisis. The abnormal bleeding time is a very early and sensitive test of liver derangement. It returns to normal as soon as the liver functioning becomes normal.

The liver is the largest single organ and its functions among the most important for the sustenance of life and maintenance of health, and yet the little knowledge we have as yet gleaned concerning the details of its daily work are but dim rays almost lost in a great cavern of darkness and but serve to remind us that there is a vast chamber of ignorance waiting for the torches of knowledge to illuminate.

EMBOLIC GANGRENE OF THE ARM; REPORT OF A CASE*

JAMES R. MOORE, M. D., Clemenceau, Arizona.

According to a recent editorial, embolic gangrene of the extremities from plugging of the main arterial trunk is a rare condition. P. Bull of Christiania, Norway, was able to find but 15 cases among the records of 6140 autopsies performed in the Kikshospital, covering a period of 26 years. These cases were all of the main arterial trunks and the emboli originated from preformed thrombi in the cardiac cavities or aorta. The following case, although differing from those in the series studied by Bull, is not without interest:

History: Mrs. M., a married woman, aged 56 years, a housewife, whose past and family history were negative except for a severe attack of acute articular rheumatism 19 years ago; was first seen by me in June, 1921. At that time I found the patient extremely restless and gasping for breath. There was considerable enlargement of the cardiac area and the heart action was tumultuous, extremely irregular and rapid. A systolic murmur at the apex and a diastolic murmur over the aortic area were present. There was a marked gaseous distention of the stomach, relief from which quieted the heart action and respirations.

The following night she developed severe pain, numbness and tingling in the left foot. The foot was cold, but not livid, and she was able to move the toes. Morphia was given for the pain and the foot placed in a continuous dry hot pack. Recovery from this condition was complete within one week. A diagnosis of embolus involving one of the smaller arteries was made and it was thought that recovery occurred through re-establishment of the collateral circulation.

The present trouble began at 4 a. m. on March 12, 1922, at which time she was awakened by a sudden severe pain in the right hand. Accompanying the pain was a burning, tingling sensation, and loss of power in the fingers. When I saw her four hours later the hand was cold, blanched and flaccid. The pain, which was excruciating and paroxysmal in type, was effectually controlled only by repeated hypodermic injections of morphine. The heart action was extremely irregular, arrhythmical and rapid, the pulse small and of poor volume. The heart was considerably enlarged to the left and a systolic murmur was present; heard best in the fifth intercostal space, two centimeters inside the nipple line and transmitted towards the axilla. There was no general cyanosis, dyspnea or edema.

Twelve hours after the onset of the attack the hand had become livid and mottled in appearance. The radial pulse disappeared at a point five centimeters above the distal end of the radius. The arterial wall was not palpable below the obstruction. For a short time there was a spastic contraction of the muscles of the forearm and of the fingers.

By the third day the thumb, index and middle fingers had become black, dessicated and insensitive. The other two fingers were very cyanotic, but there was some circulation present as well as sensation. The skin on the lower third of the forearm had also become mottled and the pulse so far receded that it could not be felt in the forearm. The following day the hand and the lower two-thirds of the forearm had become completely mummified and the brachial pulse was barely discernible.

At this time the family consented to operation and the patient was removed to the hospital.

Operation: Under ether anesthesia, amputation of the upper arm at the level of the deltoid insertion was done by Drs. Carlson and Thigpen, and the brachial artery found to be thrombosed. It was followed up almost to the axillary before the obstruction was passed. There was no venous thrombosis. Closure was rapidly done and the patient returned to the ward in fair condition.

The stump healed nicely and the patient improved generally for ten days following the operation, when she developed several attacks of hemoptysis, became comatose, and passed out on April 3, 1922, just three weeks after the onset of the trouble. Neither an autopsy nor dissection of the amputated arm was permitted.

In the absence of a postmortem examination, we draw the following conclusions from the clinical history and findings: The patient, following an attack of acute articular rheumatism 19 years ago, developed an endocarditis, which became chronic and which was later complicated by a myocarditis. This condition favored the formation of a thrombus, a portion of which becoming detached from the cardiac walls, lodged in the lower portion of the radial artery and partially blocked the circulation to the hand. Originating at this point of obstruction, there developed an ascending thrombus formation which, when it reached the bifurcation of the brachial artery, completely shut

(*Read before the Yavapai County Medical Society, at Prescott, Arizona.)

off the circulation, and dry gangrene of the hand and forearm resulted.

That the condition was primarily an embolism rather than a thrombosis is concluded from the following facts: (1) The abrupt onset; (2) the presence of a likely source of emboli; (3) a definite point of occlusion; (4) great severity of the symptoms.

It is probable that embolism alone will not give rise to gangrene, but that a secondary thrombosis above the point of occlusion, shutting off the collateral circulation, is necessary, since it is a well-known fact that even the larger arterial trunks can be ligated surgically without seriously intefering with the nutrition of the part.

Embolectomy, had it been possible to perform such an operation promptly, would, in all probability, have been been unsuccessful, since the subsequent course of the case demonstrated quite clearly that there was a marked arterial pathology present.

The immediate cause of death is conjectural, but pulmonary embolism, and doubtless cerebral embolism, probably played the major role. For this reason it is unlikely that earlier amputation, although urgently indicated at the time, could have changed the ultimate outcome.

UTERINE PROLAPSE AND ITS TREATMENT*

JAMES C. MASSON, M. D., Section on Surgery, Mayo Clinic, Rochester, Minnesota.

The etiology, symptoms and lesions of uterine prolapse, as recognized now, are essentially the same as recorded by some of the earliest writers. In recent years the anatomy has been carefully studied, and many of the operations advised aim to reconstruct the normal pelvic diaphragms.

It is necessary to realize that the uterus and, to a lesser extent, the bladder and the rectal wall are incorporated in the upper pelvic diaphragm or pubosacral fascia, and it must be considered a part of it. In all cases of prolapse and cystocele there is a downward displacement, or rupture, of this fascia, or of part of it. The recognition and treatment of the condition as hernia greatly influences the prognosis.

The prospect for curing any hernia by operation is in direct proportion to the strength of the tissues that can be utilized in closing the defect, and the ease with which they can be approximated. Apposition without tension is to be preferred to overlapping with tension, which might interfere with circulation. If undue tension is necessary to approximate anatomic structure, it is much better to utilize other structures. Each case has to be judged on its own merits. Any routine operation for pubosacral hernias should be considered radical in some cases, and as insufficient in others.

In the treatment of the ordinary types of hernia, a technic that is satisfactory in the difficult case is also often advisable in the simple case. This is not true, however, in pubosacral hernia, as in the more difficult cases it is often necessary to interfere with the function of the uterus, and in other cases to remove it. Furthermore, the age of the patient should influence the choice of operative procedure.

In most textbooks, uterine prolapse is spoken of as existing in the first degree when the cervix descends far enough to allow the fundus to turn back into the hollow of the sacrum, and the axis of the uterus to be more or less continuous with the axis of the vagina; in the second degree when the cervix descends to the vulva, and in the third degree when the uterus descends partially, or wholly, through the vulva. I consider as third degree only those in which there is partial protrusion of the organ, and as fourth degree when there is extreme prolapse with the uterus entirely outside

(*Read by invitation before the Southwestern Medical and Surgical Association, December 12, 1923, El Paso, Texas.)

the vagina. With this classification the indications for treatment are simplified, as treatment which is satisfactory for cases in which the cervix alone protrudes is not sufficient for cases of total prolapse.

I shall not discuss here any of the so-called medical, or nonoperative, forms of treatment, although they are of great value in selected cases. Many of the second and third degree prolapses seen during the childbearing period would be avoided if the patients received adequate instructions with regard to personal hygiene and exercise following childbirth, and the advice of a competent gynecologist after a thorough bimanual pelvic examination several weeks after confinements. In many instances the temporary use of a well-fitting pessary will correct the vicious tendency to procidentia, the satisfactory cure of which is one of the greatest surgical problems.

OPERATIVE TREATMENT

Cases for operative treatment may be divided into three main groups: (1) those in which it is expedient to preserve the function of the pelvic organs; (2) those in which it is important to preserve the pelvic organs, but in which there are no contra-indications to producing a sterile state; and (3) those in which the patients are near, or past, the menopause, and there is no contra-indication to removal of the uterus.

In treating patients during the childbearing period, an attempt should be made to restore as nearly as possible the normal relations. Repair of lacerations is, therefore, preferable to amputation, and shortening of ligaments to making fixations, or radical changes in the anatomic relations. It is important to treat these patients as early as possible, not only to relieve the pain and discomfort, but to prevent the necessity of a more radical operation later.

If a young man has a prolapse of the first or second degree, and there is no indication for opening the abdomen, an external shortening of the round ligaments of the Alexander type, repair of the pelvic floor, and in certain cases a Bovee operation or plastic on the anterior vaginal wall, is very satisfactory. However, opening the abdomen adds only slight, if any, risk to the operation. In all cases a satisfactory operation can be performed on the ligaments through a low middle line incision. Furthermore, other abdominal organs may be examined, and frequently a pathologic condition will be found that was not suspected before operation. In these cases I prefer a modification of the Gilliam internal shortening.

In cases of older women, especially if there is also a large cystocele, a plastic operation on the uterine ligaments and repair of the pelvic floor will not be sufficient. In most of these long standing cases, it is not the low-lying uterus that causes discomfort, but the associated cystocele or rectocele, and treatment should be instituted to relieve these conditions. If the cystocele is large and the body of the uterus still remains in the pelvis, the most satisfactory operation is an interposition operation of the Watkins-Wertheim type. In many instances the cervix is elongated and high amputation is advisable. If the patient has not passed the menopause, the Fallopian tubes should be ligated. As the degree of prolapse increases, the prospect for cure by the regular Watkins technic decreases. I believe that the failures following this operation are in the main due to an unwise selection of cases. The amount of the uterus removed should increase as the amount of prolapse increases, and the remaining part be used simply as a living pessary stitched in the opening of the uteropubic fascia, through which the hernia of the bladder occurs. The operation is for cystocele, and not so much for prolapse of the uterus as a whole. In the majority of cases of cystocele we have an elongation of the cervix, which is frequently mistaken for prolapse.

In cases in which the uterine prolapse is the chief cause of complaint, and the cystocele is not marked, fixation of the uterus and perineorrhaphy

give very satisfactory results. Here again the judgment and experience of the surgeon are of importance in selecting the type of operation. If there is only a moderate amount of prolapse, vaginal fixation of the Mackenrodt-Duhrssen-Winter type, or fixation of the fundus to the anterior abdominal wall by any of the well-known methods (that of Vineberg probably being the most satisfactory) is advisable; but if the relaxation is marked and the uterus can be delivered through the abdominal incision, the Kocher or Murphy method, or a partial hysterectomy and fixation of the stump, is advisable. In extreme cases, total hysterectomy should be performed, and the vault of the vagina fixed to the abdominal wall.

In prolapse of the third degree, in which the cervix to the level of the internal os protrudes from the vulva, and the body of the uterus is in the lower pelvic strait, I believe the most satisfactory operation is that advised by C. H. Mayo, which consists of vaginal hysterectomy with lateral apposition of the broad ligaments, with round and uterosacral ligaments included, and stitching of these ligaments into the opening in the uteropubic fascia in exactly the same manner as the uterus is used in the Watkins-Wertheim operation. Failures following this operation are the result of attempting the operation in cases not suited for it, or to failure to fix the ligaments between the bladder and the anterior vaginal wall.

In prolapse of the fourth degree, or complete procidentia, the uterine ligaments give little or no support, unless the approximation is made high, and in doing this there is considerable danger of injury to the ureters. However, most of the recurrences of cystocele following the Mayo operation are due to failure to appreciate the necessity of firmly fixing the uterine ligaments into the defect in the uteropubic fascia; that is, fixing the approximated ligaments firmly under the bladder, leaving just sufficient space for the urethra to protrude under the pubic arch, and also anchoring them into the entire length of the anterior vaginal wall. In cases of procidentia in elderly women, and in cases of extensive recurrence following any of the recognized types of operations, but especially after the Watkins-Wertheim or Mayo operation, the LaFort type of partial obliteration of the vagina is justifiable, provided the patient understands exactly what it means. If the uterus has been removed, complete obliteration of the vagina by denudation and circular suture is advisable in certain cases.

In all cases of uterine prolapse, if the pelvic floor is lacerated or relaxed, perineorrhaphy or repair of the pelvic floor or lower diaphragm is indicated, no matter what type of operation has been done to strengthen or support the upper pelvic diaphragm. Many operations have been devised, and nearly every surgeon has his own modifications. The one important consideration is to make a high approximation of the levator ani muscles. To accomplish this, the muscles should be thoroughly freed before suturing them in front of the rectum. In case of extensive laceration, the vagina and rectum are parallel; following repair, the axis of the vagina should be almost at right angles to the axis of the rectum, and a solid pyramidal-shaped perineal body should intervene.

CONCLUSIONS

1. A tendency to procidentia can be overcome in most instances by satisfactory repair of laceration at childbirth, and early institution of nonoperative measures.

2. It is important to realize that the condition under treatment is a hernia, and that the larger the hernial opening, the more difficult the closure.

3. The type of operation should be carefully selected in each case, keeping in mind the extent of the prolapse, the size of the associated cystocele, the age of the patient, her marital state, and the relative danger of an abdominal or perineal operation.

4. Perineorrhaphy is essential in all cases.

5. In difficult and recurrent cases it is sometimes advisable to obliterate the vagina.

DISCUSSION

DR. HUGH CROUSE, El Paso: Have done considerable work on procidentia, have presented a paper before the state Association and have had considerable controversy among friends in El Paso. Have gone over the points in the paper and thought it might be well to bring out some points in the anatomy of the perineum. It was a Texan who did the first work on the anatomy of the pelvic floor. After all, procidentia is only a hernia; the first thing a man should do, in any hernia, is to undertake a careful investigation of the anatomy of the parts. Yet the average man doing surgery will tackle a procidentia of varying degrees and be entirely oblivious of the anatomy. If you ask him what ligaments he is dealing with, he will say, "I am approximating tissues." His concept is not based on anatomy, and I decided that the only thing of value I could add to the discussion would be a review of the anatomy.

(Dr. Crouse gave a review of the anatomy of the pelvic floor, illustrated by quite a number of lantern slides of colored drawings and illustrations, pointing the necessity for this anatomical basis in any of the operations for uterine prolapse).

DR. K. D. LYNCH, El Paso: Am interested in the early cases of this condition. Naturally, I do not see the extreme cases, but many of them come for the bladder condition, which is the main symptom, as the author has pointed out. We are all interested in getting these cases early, and in many of them, when examined with the cystoscope, you do not realize that there is a cystocele when you look at it in the lithotomy position, yet when these patients stand up and the bladder falls down, the cystocele is produced. If you get the case early before there is a marked pelvic injury, a minor operation will cure them ,merely the plication of the fascia. A number of cases complaining of irritable bladder are nothing but early cases of procidentia, and if you get after them early, you will have no difficulty in curing them, but in the later stages will have an exaggerated hernia to deal with.

DR. R. L. RAMEY, El Paso: After listening to these discussions and seeing the illustrations, which I am not in position to criticize, want to say that in my judgment 75 percent of the operations done for procidentia are unnecessary. I believe that if we confine ourselves to the repair of the perineum in the early cases, especially getting a good muscle repair, we will correct the great majority of these cases in the first degree, and in the second degree, with a good repair of the perineum and shortening of the round ligaments, whatever the method used, you will get good results. In procidentia of the third and fourth degrees, I doubt the good of the Watkins operation; I have never done it, because it does not seem anatomically correct. With a marked procidentia, especially in those advanced in age, I do an incomplete hysterectomy, raising the cervix up with the round ligaments, and if there is a marked cystocele, I repair that. Dr. Crouse does not believe in fixing the uterus or cervix to the abdominal wall. Three or four months ago I had a case in which there was a marked procidentia with a marked cystocele, and have been criticized for the operation performed. I repaired the perineum and brought the muscles together; then repaired the cystocele and bringing the lines down to the mouth of the cervix, sewing the mucous membrane over to get good position of the bladder; I then did the old Shelly operation of stitching the uterus to the abdominal wall, and that woman has gotten perfect relief from her procidentia, and from her bladder symptoms. If you get results, that is what you and your patient want. It is my opinion that 75 percent of the operations done are because some man can do some operation a little different.

DR. MASSON (closing): Have enjoyed the discussion. Think that Dr. Crouse's addition to the paper, of the anatomical relations of the structures, is very important. In preparing a paper, the details of the subject would make it too long for the meeting, and am glad that Dr. Crouse showed the anatomical slides. We may have to overlook the anatomical relations, at times, provided we get the desired result, which is the cure of the symptoms. Cystocele is the thing that brings the patient to the doctor, and if the laceration has occurred ten or fifteen years before the operation is instituted, it is impossible to recognize the anatomical structures. An anatomical repair is out of the question. When possible, an anatomical repair is the ideal thing, and would like to emphasize the importance of early repair. I think that tears on the anterior vaginal wall are overlooked more frequently than those on the posterior wall, and at the most, approximation of the mucous membrane is all that is done. If sufficient care is taken in repairing laceration of the anterior vaginal wall, we would not be troubled with the chronic cases. Dr. Crouse suggested the inadvisability of fixation when that may be avoided. That is very important during the child-bearing period, but after this time, if you can cure cystocele by repair and fixation of the uterus, we know that these patients are entirely satisfied with the result—symptomatic cure. I do not look on shortening of the round ligaments as a cure for cystocele, but this must be accompanied by the plastic work on the pelvic deformities. Shortening the ligaments does not fix the uterus to any marked extent; patient can go through pregnancy without great trouble. It is not often necessary to operate during the child-bearing period, but after this period we should not hesitate to do the operation which will give the desired result.

SEPTIC THROMBOPHLEBITIS OF THE LATERAL SINUS FOLLOWING SUPPURATIVE OTITIS MEDIA AND MASTOIDITIS—REPORT OF FOUR CASES*

ANCIL MARTIN, M. D., F. A. C. S., and W. A. SCHWARTZ, M. D., F. A. C. S., Phoenix, Arizona.

The lateral sinus deeply grooves the inner aspect of the bony cranium and extends from the torcular Herophili to the jugular bulb. The sinus in its course is brought into close relationship with the inner portion of the mastoid process of the temporal bone, where it is necessarily exposed to infection during septic mastoiditis. The disease may spread by contiguous bone disease or by thrombophlebitis of the smaller veins of the mastoid process and the tympanic cavity. Occasionally veins leading from the middle ear to the jugular bulb set up septic thrombi without mastoiditis: furthermore, infection within the labyrinth followed by involvement of the superior and inferior petrosal sinuses and lymph spaces may be conveyed to the lateral sinus. When the intravenous infection supervenes, the barrier in most cases is insufficient, and there arises a most dangerous condition, an infective thrombus which extends along the course of the sinus in both directions and produces a general septicemia or pyemia. Particles of infected or uninfected clot are occasionally carried along with the blood stream, as emboli. As the disease continues, metastatic abscesses in the joints and vital organs may occur, also the meninges and brain become involved.

The symptoms are those of acute septicemia or pyemia and the constitutional symptoms predominate. The most constant symptom is fever. The patient has a distinct chill, following which the temperature suddenly rises to 103 or 105 degrees; after a short interval it recedes to normal or subnormal, only to rise again, preceded by a chill, these occurrences not being marked by any period of regularity. As the temperature falls, the patient sweats profusely. In a typical case the patient complains of feeling chilly, accompanied by a slight variation of temperature only. Pain, headache, vomiting or tenderness over the mastoid may or may not be present, and the patient mentally is quite clear. Tenderness or swelling along the jugular vein may or may not be present. If the venous circulation through the internal jugular is cut off, the return current reestablishes itself through the external jugular, when the increased size of the latter may be noticed. There is, as a rule, a discharge of pus from the middle ear; however, this may have subsided and the perforation of the membrana tympani have become closed. Occasionally the eye grounds show swelling of the nerve head. The x-ray picture usually shows changes in the mastoid cells.

The duration of the illness, independent of surgical intervention, is very variable, a few lingering on for weeks or even months. Cases with spontaneous recovery are on record. However, such a fortunate termination cannot be looked for, since practically all die if not relieved by operation. The disease must be differentiated from septic angina, pneumonia, malaria, typhoid fever and erysipelas.

The treatment is surgical. As soon as a diagnosis has been made, the mastoid cells should be exenterated, the internal jugular vein ligated and, as a precautionary measure, a section removed, the lateral sinus then opened and, if a clot is found, it should be removed.

CASE 1

F. A., age 44. At 25 years of age had an attack of pain in the left ear, which was followed by discharge of pus from the ear canal.

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The discharge continued at intervals for three years, when a simple mastoid operation was done. Up to the time of examination there had been no pain. General health good.

Two weeks before coming to the office the left ear had been painful and discharging. Malaise and loss of appetite had been present. Five days previously had a chill, and a swelling developed back of left ear. Since that time had an average of three chills daily, also nausea and vomiting. The chills were followed by profuse sweats.

Examination showed marked swelling over the mastoid and pain on pressure. Discharge of pus from middle ear. Pulse 96; temperature 98.4; white cell count 20,000; urine specific gravity 1028; albumen positive, red and white blood cells present.

Operation disclosed a large abscess in mastoid cavity—the lateral sinus was covered with pus and inflammatory tissue. The internal jugular vein was ligated. The sinus was opened, and a thrombus found, which was removed. Ten days later a pocket of pus developed high in the tissue of the neck in the region of the jugular bulb; this was opened and drained. The patient made a complete recovery.

CASE 2

J. B., age 38. Nine days before coming to the office had pain in the left ear; the following day went to see a doctor, who incised the ear drum, which was followed by a discharge. The pain in the ear continued, and five days later another opening was made in the ear canal. In the two days previous to coming to the office had four distinct chills and fever. Nausea, but no vomiting.

The left ear was prominent, with edema of the tissue overlying the mastoid. Pain and tenderness in mastoid region. Perforation of tympanic membrane and purulent discharge. Temperature 98.4. Pulse 90. Refused operation. Continued to have pain, chills and fever and profuse sweats following the attack. White cell count 11,000; no differential count made. Consented to operation seven days later.

Operation: Simple mastoid, mastoid cells broken down and filled with pus and inflammatory tissue. Following the operation patient continued to have an occasional chill and fever. Nine days after the first operation the internal jugular was ligated and lateral sinus opened. A thrombus was found in the sinus, which was cleaned out quite thoroughly. The condition rapidly became worse and the patient died two days later. No postmortem was done.

CASE 3

M. V., age 12. Referred by Dr. Brockway of Phoenix. The patient had a tonsillar infection followed by severe pain in both ears. Dr. Brockway did a double paracentesis and the pain ceased, following which both ears showed a profuse discharge of pus. One week later temperature was 105. Chills returned every five or six hours, the temperature rising from 104 to 106, during remissions dropping to 100 degrees.

On examination, temperature was 100, pulse 160. Bilateral suppurative otitis media. No swelling over region of mastoid. Slight tenderness over tip of mastoid on right. No tenderness over left mastoid. Probably slight tenderness along the anterior border of right sternocleidomastoid muscle.

On the same day there was done a bilateral simple mastoidectomy. In both mastoids there were broken down cells, pus and inflammatory tissue. The right internal jugular vein was ligated and the right lateral sinus was opened and a thrombus removed.

Following the operation there were no chills and no pain. The temperature would rise from 101 to 104 during the afternoon and return to normal in the morning. The fever continued about nine days. There was profuse hemorrhage from the sinus at each dressing. It was necessary to use pressure in packing the sinus. One week after the operation he complained of pain back of eyes, following the dressing. The fundi were examined for the first time and showed a moderate swelling of both optic nerves. A minimum of pressure was used in packing and there was no complaint of pain. The wound closed in about three weeks. Recovered from his eye condition completely in about six months, with normal vision.

CASE 4

B. S., age 10. Referred by Dr. Dameron for operation. The past history showed that he had had scarlet fever, smallpox, whooping cough and frequent attacks of bronchititis, since he had whooping cough. No ear trouble. Seven weeks prior to our first visit the mother noticed enlargement of the glands of the neck. A few days later he complained of pain in the left ear and his temperature was above normal. For two or three days following the first attack of pain there was drainage from the canal. Continued to have pain and tenderness in the region of the mastoid. Both pain and drainage entirely subsided in three weeks. Returned to school for one week, when he again developed pain in the left ear, with intermittent fever. There was no drainage from the ear. One week following the second attack of pain he had the first chill, and the chills returned about every 48 hours, with a rise of temperature from 104 to 106. No nausea or vomiting. Asthenia and loss of appetite.

Examination showed the tympanic membrane had lost its normal luster; however, there was no redness or bulging or perforation in evidence. The mastoid showed no swelling or tenderness. Complained of some discomfort in neck; however, there was no tenderness, swelling or rigidity. The pupils were equal and reacted to light. No paralysis of the cranial nerves. Patient had no pain. Temperature 98.2, pulse 100, respiration 23. Laboratory reported white cells 13,000; mononuclears 22 percent; polynuclears 78 percent. Radiographs of the mastoids showed good definition and detail in the right mas-

toid cells and process, but on the left side the definition was lost and the cells were hazy and the partitions did not show in normal manner. There was also some increase in density around the upper portion of the mastoid process and in the neighborhood of the antrum. Indications were that there was an infection in the mastoid cells and process.

Operation: Simple mastoidectomy. There was free bleeding from the mastoid cells. Some of the cells seemed well preserved, in other cells the septa were broken down and contained inflammatory tissue, but no free pus. The sinus was exposed. No pulsation was noticed and the sinus wall appeared normal. No clots could be palpated. A drain was inserted and the wound closed. The following morning had a chill and a temperature of 105.

Operation again on the second day. Ligated internal jugular low in the neck and removed a section. Opened the lateral sinus, which was filled with pus. Culture showed streptococci. Following the second operation had no chills. For nine days the temperature would rise to 102 or 103 every other day; in the meantime temperature was normal or subnormal. Recovery was complete.

DISCUSSION

Dr. Wylie: If I understood this history, prior to operation the temperature was normal and the patient was operated and no pus found, and after the operation he had an infection. Is the lateral sinus infection the result of the operation?

Dr. Watkins: My understanding was that he had been having chills and temperature before he was x-rayed. The question was asked me, whether in a patient with chills and temperature, and x-ray evidence of mastoid infection to the extent shown by the examination, operation was indicated. I was of the opinion that operation was indicated.

Dr. Phillips: I recall one time I had to operate a mastoid. It was in the navy. The man had been neglected for some time, was terribly sick and with the mastoid process completely broken down. It required very little cutting of bone. I got into the lateral sinus before I really knew what it was, simply by working down on the necrotic tissue. Finally I pushed through something and pus came. His jugular was ligated and we did nothing more than drain it. This man finally got well and went back to duty. The interesting point in Dr. Schwartz's paper is that these cases may come without much to warn you, particularly if the patient is ill for quite a while before you see him. This man had been treated for malarial fever.

Dr. Watkins: Another point in this connection which is confusing in interpreting x-ray findings is that you may have quite marked destruction of the mastoid cells without invasion of the sinus; and, again, you may have very little mastoid destruction, and serious involvement of the sinus. The infection can pass from the middle ear to the sinus without infecting the mastoid cells at all.

Dr. Schwartz: In the last case the patient had a temperature of 98.2, and pulse of 100, when first observed. That is quite common in these cases; then they will have a sudden rise, maybe to 106. That is due to infection being suddenly thrown into circulation. This case was a streptococcic infection. X-ray helps sometimes, as in this case, but not always. The infection may extend from cell to cell, through the bone, or through the blood vessels, in the latter instance usually by thrombosis in the smaller vessels.

DISCUSSION OF PROPOSED ACT AUTHORIZING THE COURT TO APPOINT MEDICAL EXPERTS.*

WIN WYLIE, M. D.,F. A. C. S., B. L., Phoenix, Ariz.

Experience has taught the medical profession, and, unfortunately, the world at large, that medical experts differ in opinion upon almost every question presented. So true is this that the profession has acquired an unfavorable reputation for veracity.

With a view of overcoming this state of affairs, the State Medical Association of Arizona at a late annual meeting passed a resolution directing that a bill be framed and presented to the next legislature, "making it mandatory that in all legislation wherein medical expert testimony is used, the presiding judge shall appoint three or more medical experts who shall make examination of places, things, litigants and others necessary to enable them to give intelligent testimony as to matters of fact or opinion, that the medical men so appointed shall testify and shall be paid therefor by the county, and the amount so paid in each case shall be added to the court costs and taxed to the party losing the action."

The inference is plain, towit, that the medical expert, as now selected, is biased by his employment; that, by

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having the judge make the appointment, the medical expert would come into the case absolutely free of prejudice and give his testimony as any other court officer performs his duties.

At first glance, such a situation seems ideal, yet it is the object of this paper to call attention to the fact that such a law would be unfair and unconstitutional. From our American sense of fairness, we insist upon the right to introduce in our courts of justice the testimony of any and all qualified witnesses whom we have reason to believe will give true testimony of fact or opinion tending to support our side of any legal contest, and have such testimony weighed with the same scales that are used in weighing the testimony of all the other witnesses, and we are glad to extend to our opponent the same right.

That such a law would be unconstitutional is decided and explained by the Supreme Court of the State of Michigan in the case of the People vs. Dickinson (164 Mich. 148) wherein the Court found in part as follows:

Brooke, J.—Respondent was convicted of murder in the recorder's court for the city of Detroit, and brings his case to this court for review. During the trial, it became apparent that the respondent claimed immunity from punishment because of alleged lack of mental capacity. The Court thereupon, acting under the mandate contained in section 3 of Act No. 175 of the Public Acts of 1905, proceeded to appoint two medical experts. The appointment was made known to the jury, and the experts gave testimony. The experts were appointed, and their testimony received, over the objection of respondent, and exceptions were duly taken. The only question raised upon this record is the constitutionality of the act in question, which is as follows:

"An act to regulate the employment of expert witnesses.

"Sec. 3. In criminal cases for homicide where the issues involve expert knowledge or opinion the court shall appoint one or more suitable disinterested persons, not exceeding three, to investigate such issues and testify at the trial; and the compensation of such person or persons shall be fixed by the Court and paid by the county where indictment was found, and the fact that such witness or witnesses have been so appointed shall be made known to the jury. This provision shall not preclude either prosecution or defense from using other expert witnesses at the trial.

"Does the act violate the provisions of section 16, article 2, of the state constitution?"

Section 16 of article 2 of the constitution of 1909 (32, art. 6, Const. 1850), among other things, provides:

(152) "No person shall . . . be deprived of life, liberty or property without due process of law."

"Due process of law" has been variously defined. Mr. Cooley in his work on Constitutional Limitations (7th ed. p. 502) adopts the definition given by Daniel Webster in the Dartmouth College case, 4 Wheat. 519, 4 U. S. (L. ed.) 629, as follows:

"By the law of the land is most clearly intended the general law, a law which hears before it condemns; which proceeds upon inquiry and renders judgment only after trial. The meaning is that every citizen shall hold his life, liberty, property, and immunities under the protection of the general rules which govern society. Everything which may pass under the form of an enactment is not, therefore, to be considered the law of the land."

This provision of the constitution has been frequently discussed in the decisions of this court. From an examination of the authorities, it is apparent that this constitutional guaranty simply preserves to the people the rights which had existed for centuries, and which had been enjoyed according to the course of the common law. It means such an exercise of governmental power as is sanctioned by settled maxims of law, under such safeguards for the protection of individual rights as those maxims prescribed. It becomes pertinent, therefore, to ascertain what settled maxims and safeguards—what "general rules which govern society"—are applicable to a criminal prosecution such as is here under consideration. Wherever the common law is in force, the parties to a criminal action have been, upon the one side, the Crown (153) or the people, and upon the other, the accused. In England and her colonies, the Crown is represented by an official duly appointed by it, whose duty is to prosecute. In this country, the duties of this official have been assumed and discharged by the prosecuting attorney, who is, himself, a constitutional officer. Const. of 1909, art. 7, No. 3). From the foundation of our government, it has been the duty of the prosecuting attorney to prepare the case for the people. He, and he alone, must determine what witnesses shall be sworn to establish the case he presents. In case of disability or the necessity for assistance, the statute provides for substitution or assistance as the case may be, upon proper application, but the principle of responsibility remains the same, though the service may, by reason of necessity, be temporarily performed by one clothed with statutory authority. See Wigmore on Evidence, No. 1286 and 2483. We think it clear that the preparation for and conduct of the trial on behalf of the people are acts executive and administrative in character. Under our constitution, which jealously separates the powers of government

into legislative, executive, and judicial departments, the powers and duties properly belonging to one department cannot by statutory enactment be granted to or imposed upon another department.

The power of selecting and appointing witnesses who shall, after appointment, acquaint themselves with the matter in controversy, and testify concerning the same, is in no sense a judicial act, and, if exercised by the court in accordance with the mandate of section 3, would entirely change the character of criminal procedure, and would seriously endanger, if not absolutely destroy, those safeguards which our constitution has so carefully enacted (154) for the protection of the accused. The most cursory examination of section 3 will disclose its vice. The court is directed to appoint one or more suitable, disinterested persons to investigate and testify. The reasons whiich impel the court to make the selection are not of record and can never be known. The names of the selected experts cannot be indorsed by the prosecuting attorney as required by law, for he himself is as ignorant of their identity as is the accused. The right of one accused of crime to know in advance the names of the witnesses who will testify against him and to examine into their character, means of knowledge, etc., in order that he may properly prepare his defense, is a right as ancient as our criminal jurisprudence. The court is commanded to make known to the jury the fact of the appointment, and that his appointees have been found by him to be suitable and disinterested. The section then provides that other experts may be sworn by either prosecution or defense.

This is an idle provision, for in the face of the certificate of character, fitness, and ability given to the court experts by the court, experts summoned by either side would receive but scant consideration at the hands of the jury; their testimony would be swept aside in a breath. Juries are most anxious to ascertain the opinion of the court as to the innocence or guilt of the accused, and, ordinarily, more than willing to adopt that opinion as their own. Trial courts, therefore, in doubtful cases, have jealously guarded their own opinions in order that juries might determine controlling facts uninfluenced by the mental attitude of the judge.

The expert witnesses provided for by this section testify under a sanction which gives to their testimony practically the same weight as if it were delivered by the court itself, and if that testimony, being against the accused, were either wilfully false or ignorantly mistaken, its baneful results would be appalling. To give to the testimony (155) of a witness or witnesses this extraordinary certificate of candor, ability and truthfulness, while the other testimony in the case must be judged by the jury by ordinary standards, is to subvert the very foundations of justice. In People v. Vanderhoof, 71 Mich. 158, 39 N. W. 28, this court said:

"The charge of the court virtually put the evidence of these doctors and professors upon a higher plane than the other testimony, which was manifestly wrong."

In People v. Seaman, 107 Mich. 348, 65 N. W. 203, 61 Am. St. Rep. 326, the following language is used:

"An expert witness is to be judged from the same standpoint as any other witness."

In People v. Holmes, 111 Mich. 364, 69 N. W. 501, we said:

"When the question of insanity is to be submitted to the jury, the testimony which is offered to support the claim should be treated with the same respect as that offered to establish any other fact."

We do not overlook the fact that the statute here considered was designed to correct an evil long recognized as tending to bring the administration of the criminal law into disrepute, in cases where insanity is urged as a defense, but we are of opinion that the true remedy for this evil rests in the development of a livelier sense of responsibility to the public for the proper and decent administration of justice on the part of both the legal and medical professions, rather than in revolutionary legislation. That both professions recognize and deplore the existence of the evil, there can be no doubt, and recent activities in both lend reason for hoping that the scandal which has often attended the introduction of expert testimony will, in the future, cease to be a reproach in the administration of criminal law.

In view of our conclusions upon the second point discussed above, it is unnecessary to give attention to the (156) third ground urged. We must hold section 3 unconstitutional.

The judgment is reversed, and the respondent remanded to the custody of the county of Wayne, to be tried again."

It is true, the foregoing opinion was given regarding medical expert testimony in a criminal action, yet its every reasoning and finding is equally applicable to testimony involving property rights.

So far as the writer has been able to discover, there has been no other supreme court decision on the question. There is no doubt but that this decision would have sufficient influence to control all other supreme courts should the question come up in other states.

It would seem that there is no way around the past and present method of selecting the medical expert. Hence it would appear that it is incumbent upon the members of the medical and legal profession to so conduct themselves that both professions may secure that respect and confidence which great learning, honesty of purpose and absolute truthfulness always commands.

DISCUSSION

Dr. Watkins: There seem to be two points of view about this question—that which the medical man desiring to keep to the straight line of truth takes, and that taken by the law, which would preserve the technical accuracy at the expense of justice, if necessary. The majority of doctors can see only the first view. Dr. Wylie has seemed to demonstrate that what we would like cannot be secured without going contrary to established law and, in this, it is like many desirable things which cannot be gotten on account of some legal obstacle. There certainly seems to be faint hope that the evils existing in this particular line of testimony will ever be remedied by reformation of the individual members of the profession. As long as testimony can be bought, there is no question in my mind but that it will continue to be bought from medical men. If it is not bought outright, it is certainly bought indirectly. The man who is testifying on a contingent fee and must depend on the outcome of the case is selling his testimony just as certainly as if he accepted a five hundred dollar check to go on the stand and say certain things. In either event he is selling his testimony. It is not conceivable that a man with a human mind can go into court and give unbiased testimony under those conditions. The usual practice is for both prosecuting and defendant attorneys, in civil suits, to go around from doctor to doctor, presenting their case, with a fat fee dangling before the doctor, openly or tacitly inviting him to frame an opinion which will be favorable to the side the lawyer represents. This offer to buy testimony is very seldom openly made, but it is always present, and what is worse, it is too frequently accepted by the doctors. The point which Dr. Wylie raises about the standing which a witness appointed by the court would have in the eyes of the jury is very true, and it is just the very standing, regardless of the legal phase of it, which medical men would like to have established, and which most judges would like to have established, but which many practicing lawyers are afraid of because it would remove one of their best opportunities to obscure the truth and bamboozle the jury.

I have been forced by the character of my work to be involved in many suits for damages, and I always long for the opportunity to go on the stand and tell the unbiased truth, without prejudice for either side, but this privilege is always denied me. The moment a question is asked which threatens to disclose a little truth, objection is interposed, and usually sustained. I cannot discuss the legal technicalities of the matter, but I, like many doctors, resent being sworn to "tell the truth, the whole truth, and nothing but the truth", and then being placed in a position in which it is impossible to be truthful.

Dr. Gudgel: I believe our eastern states have gone us one better when they established commissions for the purpose of ascertaining just how much a man is injured and just how much that injury is worth. I think if such commissions were established in every industrial district to sit on such cases and keep them out of court, the manufacturers and the industries in general would profit, and I believe the injured employes would profit.

Dr. Smith: There was a wise man some time ago who said that all men are liars. The truth is the truth; it is not an opinion about the truth, but the abstract truth. Another wise man has said that an exact knowledge of the truth is unobtainable; it is one of the unobtainable things, but people have to make a living, so we have many religions, many courts, many doctors, and many differencies of opinion. I try to keep out of court practice as much as I can. Just a few days ago a doctor from a neighboring town came in and got about everybody in town lined up on a case. He said to me, "How did you get out of this? Why didn't you get in and get your hundred dollars?" Not for me.

Dr. Carson: I am after some information. In a recent trial, three men were appointed by the court, two others and myself. I was told that we were appointed by the court to ascertain the unbiased facts in the case, yet we were not paid by the court at all. We were paid by the defendant (Water Users' Association), and when we got up to testify, the direct examination was made by the attorney for the defendant (Water Users); it seemed to me that the jury would get the impression that these three witnesses were witnesses for the defense in this case. I would have felt much more comfortable in going on the stand and testifying had I felt that the court was actually paying me, because I did not quite agree with the defendant's doctor in regard to the amount of disability this man had, so I was not actually a witness for the defendant.

I am inexperienced in court, and I want to know how much a doctor is supposed to know if he goes on the stand in a personal injury case. How much is he supposed to know about the anatomy of the nerves, muscles, bones and that bunk. An ordinary doctor in general practice has forgotten the insertion of muscles, the distribution of nerves and possibly considerable about the bones. Is he supposed to study up on those questions, so he can answer pat on them?

Dr. Vivian: The purpose of the appointment of physicians by the court, as I see it, is an effort to arrive at what Dr. Smith calls the exact truth. The physician who is taken into the court by the plaintiff is the plaintiff's witness, and he only tells those things which are favorable to the plaintiff. Frequently other physicians whom the defense may call are excluded from testifying by the claim that the testimony is a privileged communication. This commission is an effort to get at both sides of the question without letting down the bars and overruling the law of privileged communication. I would like to ask Dr. Wylie to say, in his closing discussion, whether the statement in his paper

that any and all persons who have knowledge of the facts should be allowed to come into court and testify, holds true in the light of the statute which makes a doctor's knowledge of facts a privileged communication and, therefore, not admissible.

Dr. Holmes: Do we not have a law in this state providing for appointment of a representative of the court? I have been appointed by the court in two cases and received my pay through the court by a check from the county each time.

Dr. Carson: If the defense, or the plaintiff brings in some medical testimony favorable to him, just how far would he be allowed to make favorable testimony? Is he allowed to leave out things purposely when he knows they would be detrimental to the man he is testifying for? Is he allowed to stretch the point a little to make the case good?

Dr. Bailey: You are sworn to tell the truth and the whole truth, but very seldom are you allowed to do it. I remember, on one occasion, when being sworn, I replied that I would tell the truth if the attorneys would allow me to. Often the attorney will arrange his question so it will suit his client and will then say, "Now, doctor, answer yes or no", and you are forced to answer thus when you know full well that the jury is drawing a wrong conclusion from your answer. We can frequently settle this truth proposition before it goes into court, especially in civil cases. Very often a lawyer will bring a patient and ask you to examine him carefully, that he has been injured in an accident, and if injuries are found, the case will go to court. You can frequently say to these attorneys, "You have no case", and then you will not have to go to court. One eye case was brought to me and I insisted with the attorney that this man had a self-inflicted injury in the cornea; he got some doctor outside of Phoenix to help him and got a verdict for eight thousand dollars.

Dr. Phillips: Would like to ask Dr. Wylie if the powers these experts appointed by the court are to be given under the proposed act could be given to the same people if they were made into a commission, such as the Industrial Commission which Dr. Gudgel spoke about?

Dr. Wylie: I do not think there is any question about that.

Dr. Schwartz: I have nothing to say on the matter of court testimony, but we have a lot of trouble before the cases get into court, with attorneys coming into the hospital and trying to get our patients "signed up" for damage suits. The United Verde Extension people are beginning to send their eye cases to the coast, and other corporations will follow suit to our great loss. That feature means something to us and means something to the hospital. We would like to know how to handle this situation. There would be no objection if it were done in a regular way, but these lawyers go into the hospital and represent that they are sent by the Mexican consul; this was done very recently in a case, in order to secure an assignment of a case.

Dr. Watkins: This is a question which should concern the organized medical profession. We will never get the referred cases which are required to make Phoenix a medical center, as long as we are known to be a hotbed of shyster lawyers. I would like to know whether the legal profession has any ethics, and if so, whether such tactics as this constitutes unprofessional conduct under their ethical code? If it is unethical for an attorney to run a man down and solicit patronage, we could bring charges before the Bar Association and have these lawyers disbarred from practice, if we will secure the proof. If this is not practical, we should start some sort of backfire, and try to have someone who will be listened to by these Mexican people talk to them when they enter the hospital, and induce them to have no dealings with anybody who solicits their case. I have been told that when a mine accident occurs, before the State Mine Inspector can reach the spot, a representative of some Phoenix attorney will nearly always have the assignment of the legal rights of the injured employe.

Dr. Wylie: It would at least seem that the lawyers are industrious. As to what constitutes unprofessional conduct in a lawyer. The personal injury lawyer has obtained the name of "ambulance chaser", a term used among attorneys with a great deal of contempt. The ambulance chaser in many instances may be more active than he should be; yet, although I have been associated with corporation work for a considerable time, I want to say, in defense of the ambulance chaser, that he is no more industrious than the claim agent of the corporation. I have seen a thirty thousand dollar injury settled for thirty dollars before any lawyer could get to the injured man, and the claim agent went away laughing. The question of ethics has two sides to it. As to a comparison of the ethics of the two professions. I heard a judge, the other day, make the statement that if a member of the legal profession did what one of our very good members of the medical profession had done, they would disbar him; this had reference to the delivery to the defendant corporation of a letter written to a doctor by his patient, the letter to be used to discredit the patient. We would not have any idea of revoking a doctor's license for a thing like that, so what seems particularly obnoxious to the medical man is not so obnoxious to the legal viewpoint, and vice versa. In the matter of attorneys going into the hospitals or scenes of accident, to solicit business, Dr. Watkins really explained it when he said that the lawyer's representative was there; the representative of the Phoenix lawyer was in Globe, but he lives in Globe; he is there all the time. We all have our different ways of getting business; some of us cultivate the church; some of us cultivate the secret society; some of us do not

care about any of them and get a little business on the side, but we can do these things and think it reputable. Some of these lawyers try hard to get cases, because some of them are hungry.

As to the questions which are asked by the lawyers. That is the reason for much apparent disagreement in the testimony of doctors. The same hypothetical material can be framed in two questions which, to the untrained mind, will appear to be exactly the same question, and yet the questions can be truthfully answered in diametrically opposite opinions. For example, we have an insanity case and the lawyer begins his hypothetical question with "assuming that he is a healthy man, with symptoms so and so", is he sane or insane? The answer comes back promptly, "He is sane", because he is first assumed to be healthy, and if he is healthy, his symptoms mean nothing. After the first clause, the balance of the question means nothing. It is the attorney's business to study the best interests of his client, and if he can frame his question so that a truthful answer will benefit his client, it is his duty to do this. The ability to do this marks the difference between a good attorney and a clodhopper.

One of the doctors asked what he should testify to. He should testify always to the truth. It is no business of the doctor to consider what impression he is making on the jury. He is asked a question and should answer it truthfully. As to the amount of knowledge he should have, that depends a great deal on the position he occupies. Dr. Carson perhaps remembers a recent experience in court, and wants to know how much anatomy he should know, intimating that he was closely cross-examined on anatomy. The fact was that he was not asked a single anatomical question, and invariably, gentlemen, the witness who goes on the stand, as Dr. Carson did, and tells the truth as he sees it is not cross-questioned very much. It is the man who is trying to put something over who opens himself to cross-examination, and it behooves him to know what he is talking about. He should know anatomy as well as the automobile mechanic knows the automobile, and what he has forgotten, it is time he went back and learned it, if he is going to pose as an expert in court. In this very case, one of the medical experts testified that it would be impossible to tear the brachial plexus and the teres major muscle without an injury to the bone demonstrated by x-ray. Now, it was the attorney's duty to demonstrate to the jury that this particular man did not know what he was talking about, and the easiest way to do it was to question him on anatomy; to ask him if he tested the teres major muscle—which he had not; to ask him if he knew where the teres major muscle is located—and he did not; and a few more questions of that kind. Again, if a man is engaged, like Dr. Gudgel, in representing a corporation, not knowing whether he is to testify in a suit involving a large amount, I think it is his duty to work night and day on that case until he knows everything that there is to know on the subject in question. If he does not do that, he is not faithful to his employer. When a man is called upon the witness stand on a few minutes' notice, is not expected to know so much, but if he has a number of days in which to prepare himself, it is his duty to so prepare. If I had a law suit involving thirty or forty thousand dollars and was going to pay a man $250 for an hour of his time in court, I would certainly expect him to know what he was talking about when he went on the stand.

As to the difference between privileged communications and ordinary testimony. The privileged communication is a condition which is produced by statute; in common law there is no such thing. If it were not for the legislative statute, we would have the right to tell everything we know in court. The statute is undoubtedly a good one, though it hits the people I work for and hits the people that all of us who are associated with industries are interested in. But remember that the service we render is not rendered to the railroad or corporation, even if they do pay us ;they are not your patients. The injured man is your patient, and it is to him that you owe duty, so that if you disclose anything where it will hurt him, you violate a confidence.

With regard to unprejudiced testimony. I do not think there is such a thing. I do not think it is possible for a man to be unprejudiced on any question where there are two sides, and those of us whose ideas are worth a penny will be on one side or the other. But it is not the doctor's business to decide which side is right; it is his business to answer the questions asked him truthfully. With regard to our present statute allowing the court to appoint a commission. It is almost impossible for the commission making the examination not to be prejudiced against the plaintiff. In the first place, they are appointed by the court to examine the plaintiff, who has not invited the examination. In order to earn their money, they have to contradict the man who is being examined, and they are antagonistic to him from the start. I do not know how this attitude can be remedied.

As to the contingent fee. If any man testifies on a contingent fee basis and it can be shown that he has, they will put the case out of court. His testimony, at least, should be disregarded.

As to bought testimony. I do not think there is any such thing. I do not think any lawyer would have nerve enough to go to a doctor and offer him pay to testify untruthfully.

I believe that the act authorizing the appointment of doctors by the court is unconstitutional. The decision which I read to you plainly discloses that the appointment of a witness is an administrative act and not a judicial one, and I believe that our act will sooner or later get before the Supreme Court of the State, where it will likely be declared unconstitutional.

ORTHOPEDIC PRINCIPLES IN INDUSTRIAL SURGERY*

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The purpose of this communication is to set forth in a general way some of the lessons we have learned in an experience of twenty-five years of industrial surgery in the hope that it may help others engaged in the same line of endeavor to crystallize experience into definite rules of action sooner than we have been able to do, for it is only within the past five to eight years that we have been definitely preventing certain sequellae of injuries that formerly we thought to be unavoidable.

For this we find ourselves indebted to the work of the orthopedic surgeons, especially that part of it which deals with the after care of fractures, which has taken such a prominent place in surgical literature during and after the great war. We have come to realize that the dominant thought in the mind of the truly useful orthopedic surgeon is the prevention of loss of function as well as the restoration of function after injury, rather han cosmetic results.

Since the advent of the portable x-ray machine we have been able to check the position of fragments very accurately, to detect the deposition of callus, and to follow the progress of healing so that there has been a tendency to regard a fracture as a lesion of bone alone and to disregard the concomitant lesions of muscles, nerves, blood vessels and joints more than we used to do before we had these machines. We have found that when a bone is healed we have expected the patient to resume his occupation forthwith, and that when complaints were made of stiff muscles with pain, of numbness or neuralgic pains, of weakness of muscles, and, most important and long lasting of all, of stiffness and pain in the joints above and below the fracture, that we have been over quick to accuse the patient of malingering; so that we have learned to treat the lesions of these parts during the time required for the healing of the bones and by following certain orthopedic principles to prevent many of them to a large degree, with a resulting saving of time lost that is a valuable economic factor both to the patient and to the employer.

To illustrate, after treating a fractured femur by extension in any of the accepted forms of apparatus and keeping the limb immobilized for from six to eight weeks we found that the greatest after difficulty we experienced was stiffness of the knee joint and weakness of the extensor muscles of the thigh. We have frequently spent months of painstaking physiotherapy before the patient could trust his weight upon the leg for these reasons. Since we have learned to treat these fractures in the Thomas splint or some of its modifications with the movable leg piece attached we have been able to reduce the period of stiffness of the muscles and joints by at least one-half, for the reason that before the patient ever gets out of bed the knee joint is readily movable through an arc of 45 degrees, the ligaments are not stretched and all of the muscles of the thigh are freely movable by the patient's own effort. We exercise the muscles of the thigh group by group by means of massage and the faradic current daily beginning from ten days to two weeks after immobilization, and the patient himself exercises the knee by pulling the end of the splint up and down by means of a cord attached to the end of the leg piece and running over a pulley above in the suspension frame. This is a direct application of the orthopedic principle that function not lost will not have to be restored.

In fractures of the leg our greatest difficulty in getting the patient back

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to work has been stiffness of the ankle joint with shortening of the tendo Achilles and moderate toe drop. It is amazing to realize how stubborn a shortened tendo Achilles can be and how much the patient dislikes the process of stretching it so that in all cases the foot is brought into dorsiflexion at the first dressing and kept there at all costs of time, effort and ingenuity. The muscles of the calf are twice as strong as those of the anterior groups and, aided by the pull of gravity, toe drop is inevitable unless thoroughly provided against. Even in the few cases where we use the Stienman pin for extension the foot is kept dorsiflexed and in two cases of concomitant fracture of the os calcis we have not hesitated to cut the tendo Achilles in order to keep the flexion of the foot. Neglect of this orthopedic principle will add two to four months to the time lost.

In Pott's fracture we endeavor to combine dorsiflexion of the foot with the required degree of inversion, and after three weeks begin active movements of the joint, and then pay most particular attention to preventing the vicious eversion of the foot for many months whether the patient returns to work or not. There is no deformity following fractures that may occur so long after the injury as eversion of the foot after fracture about the ankle joint. We employ here felt padding under the sole of the foot supporting both longitdinal and transverse arches and adhesive plaster strapping maintaining a moderate degree of inversion for four months, as well as elevation of the inner border of the heel and sole of the shoe for at least six months. Another lesson from the orthopedist, and a very valuable one.

Before leaving the lower extremity mention should be made of foot drop due to lesions of the external popliteal nerve, which are not uncommon. If with or without fracture the anterior tibial group of muscles is allowed to become over stretched it will take months to get them redeveloped to the point of holding up the foot. After injuries about the knee and upper leg it frequently follows that there is a definite paralysis of the extensor group of muscles and it is frequently impossible to determine whether the external popliteal nerve has been torn or over stretched or contused. In such cases the foot must always be kept in dorsiflexion so as not to allow overstretching of the anterior tibial muscles, for in case suture of the nerve is required function will reappear weeks sooner, or in case the nerve is not torn the contractility is not lost and will be followed by a much speedier resumption of strength under electrical stimulation. We have had two cases recently illustrating this point. One had a simple fracture of the tibia and fibula at junction of upper and middle thirds. There was complete paralysis of the anterior tibial group for six weeks after the fracture. The foot was kept well up and beginning at six weeks the muscles rapidly regained their contractility whereas, if they had been allowed to stretch by foot drop, the period of recovery probably would have been trebled. The other was one of severe injury to the knee with crushing fracture of the tibial head and rupture of the internal and external lateral ligaments as well as the popliteal fascia and the ligament of Winslow. This knee was freely movable in all directions. There was complete paralysis of the anterior muscles and it was thought that the nerve was certainly torn; however, after about three months there came a feeble response to the faradic current showing that the nerve was not torn but had been stretched and contused. The foot had not been supported as well as it might have been owing to other severe lesions of head and right arm, but with a brace supporting and holding up the foot for the last two months function is slowly being regained in this case.

In all fractures of the humerus there is great liability of injury to the musculo spiral nerve, so we have learned the same lesson here, to have strict regard for the position of the wrist and hand so as to prevent overstretching of the extensor groups of

forearm muscles with wrist drop. There is also the same liability in fractures about the elbow joint so that we try to adopt the principle of Sir Robt. Jones' cock up support in all these cases to prevent this stretching. In case transplantation of anterior muscles to the back of the forearm is indicated it is of great advantage to have had the other muscles and tendons in this shortened position. The anterior muscles of the forearm are stronger than the extensors and the weight of the hand falling forward is considerable so that in the absence of definite support contraction of the anterior muscles with overstretching of the posterior muscles is sure to occur.

In fractures of the head and neck of the humerus as well as all severe injuries about the shoulder there is a rapid contraction and hardening of the pectoral and subscapular groups of muscles with resulting inability to raise the arm away from the chest. These are very tedious cases to treat afterwards and are apt to be off work for a long time. We have found that the use of the aeroplane splint or its modification or the Thomas arm in full abduction and elevation prevents these contractures measurably splint and in certain instances adhesive plaster traction holding the arm and hastens the voluntary circumduction of the arm by definitely shorter periods of time; also in case ankylosis of the shoulder joint should occur there will be a fair range of motion due to the sliding of the scapula.

One of the most useful applications of orthopedic principles we have found to be in the treatment of burns. The combination of the paraffine wax treatment with proper splinting has enabled us to obtain results in avoiding contractures that surpass any that have been possible before the last five years. The wax treatment permits the rapid growth of real epithellial cells over large areas with much softer scars so that in burns involving flexures such as the groin, popiteal space, axilla, and elbow, as well as about the ankle and neck, if the part is splinted in full extension and the wax used in those positions, the result is a much greater degree of mobility than used to be the case, as well as a more rapid recovery.

Injuries about the wrist and hand have a more serious aspect to the wage earner than those of any part of the body, even to loss of a leg, and cause more lost time by far than all others combined, first because they are so frequent, second because they are usually considered minor injuries and do not receive the attention they deserve, third they are difficult to treat because the patients are ambulant and dressings are constantly interfered with. Fractures about the wrist, particularly Colles' fractures, are more frequent in industrial work than in any other part of the body except the clavicle and I do not hesitate to say are more frequently badly treated than any other fracture. The most usual mistake is incomplete reduction due to failure to break up impacted fractures which look straight in the x-ray film, and to a failure to understand that the radius curves downward at its lower end and the articular surface looks forward and downward instead of straigh t forward. If these lines are not perfect after reduction there will be slower recovery and permanent weakness due to interference with the lower radio-ulnar articulation, with the radio-carpal joint, and with the flexor tendons which are disturbed in their relation to the fixed tendon sheaths on the bone. We have learned to use invariably an anesthetic for reduction of Colles' fractures, under fluroscopic control if possible, to immobilize in the slightly flexed position, using pads of felt under the splints over the lower end of the upper fragment and over the upper end of the lower fragment and that a slight but disabling deformity will recur unless the splints are left on for full three weeks, leaving the fingers free to be mobilized from the first.

It is a well known and important orthopedic principle to posture a part

so that if the worst occurs it will be in the most useful position and this is nowhere neglected so much as in injuries to the hand and fingers. Metacarpal fractures are considered a minor injury but as a matter of experience they require just the same painstaking treatment as any other long bone. The common deformity is dorsal bowing with a resulting dropping of the metacarpal head into the palm after which flexion of the corresponding finger will never be normal. These fractures all require extension with felt padding under splints to raise the head into its normal position. Fractures of the phalanges also require extension in the orthopedic positions which not only helps to keep the alignment, but pulls the little joints apart and so prevents stiffness which unduly prolongs the disability. The extension should be applied in such a way as to slightly flex the fingers and to abduct the thumb, as adduction of the thumb produces a disability which will last a long time. In the treatment of no part of the body will the exercise of patience and ingenuity be better reward than in injuries about the wrist, hand, and fingers.

All this sounds like elementary and more or less unnecessary advice and it is probable that every surgeon in the room is saying to imself, "I always do all of those things." If you **always** do all of those things in every case and personally measure, exercise and inspect each fracture under your care every day while it is under treatment, if you have many cases you are an extremely busy man, for these details are time consumers of the first order, and yet they should be done in every case if we are to secure the results we owe the patient, the employer, and **ourselves.**

CASE REPORT

Dr. P. E. McChesney, El Paso, Texas.

(At El Paso Co. Med. Soc. Meeting, Feb. 25th.)

These specimens are from a child ten months old, who was sick about two weeks. The father of the child is tuberculous, an ex-soldier. The child was first taken sick with an acute fever; physical examination at the time of the onset was negative, urinalysis showed moderate number of pus cells. Tentative diagnosis of pyelitis was made and the child was put on acriflavine without any benefit.

Until the tiime of the acute onset of the last illness, the child had been in perfect health, was well nourished and had no trouble with feeding. The fever continued uninterrupted by treatment, ranging from 101 to 104 and 105 daily. Several chest examinations were made, all negative. No signs of meningitis. The only thing found was pus and albumin in the urine.

On the last day of her illness, I saw the child about six o'clock, at which time there seemed to be a slight rise in respiration, no cough to speak of, no lung symptoms found on very careful examination. I noted there had been a change in breath sounds on the left side, no cyanosis. About seven o'clock the family phoned me and said the child was rather blue and had considerable difficulty in breathing, and had swelling under the left side of the jaw and neck. They had no idea what the swelling was, it had come on rather suddenly, so I went to the house. I was much surprised to find subcutaneous emphysema. Dr. Rawlings then came and I think he was surprised, too. The child died that night about 12 o'clock.

The part that is very interesting in this case is the unusual complcation which caused the child's death. The diagnosis of pyelitis was the only one made up to the time of the emphysema.

Report of post-mortem examination, as made by Dr. Willis W. Waite, is as follows:

"Body is that of a white female child, said to be ten months old; well developed; well nourished.

Over the upper part of the chest, more marked on the left than on the right side, there is an extensive crepitation under the skin. On section fair amount of subcutaneous fat, muscles fairly well developed. Beneath the skin on the upper part of the chest, there is air or gas in the tissues. Body embalmed before examining; considerable bloody fluid in the abdomen, probably stain and embalming fluid. Spleen enlarged; otherwise no gross lesions noted in the abdomen.

On opening the chest, left lung collapsed, little vesicles of air under the pericardium. In the anterior edge of the lower lobe of the left lung, there are several vesicles filled

with air, which extend back into the lung substance. The lung itself is rather heavy and barely floats in water. Left lung not sectioned. Right lung free of adhesions. In pleura of upper lobe there are numerous small pin point white nodules. On section the lung is quite dense, only slightly air containing, reddish color, with numerous pin point white nodules scattered through it. Cut surface of whole looked more like spleen than lung.

Heart showed no gross lesions; kidneys relatively large, soft, reddish color, some adematous tissue, striations poorly defined. Tongue and trachea removed in one piece; no obstructions or ulcerations in the trachea. Just above the calcification in the tissues surrounding the trachea, there is a nodule about 15 mm in diameter. Section cut surface yellowish, made up of caseous looking material.

Section through the nodule just above the rarefaction of the trachea showed typical tubercles, with large numbers of giant cells.

Two sections through the right lung showed intense round cell infiltration through most of the lung tissues and in numerous places there were small well developed tubercles, with numerous giant cells.

Section through each kidney showed patches of hemorrhage and areas of round cell infilteration, in some places edema. Those places where the epithelium had collected in tubules stained very poorly and no definite tubercles were seen.

DIAGNOSIS: Miliary tuberculosis, spontaneous pneumothorax, acute nephritis, emphysema of the subcutaneous tissues over the chest.

—W. W. WAITE."

CASE REPORTS

(Drs. J. W. Tappan and E. B. Rogers, El Paso, Texas)

Woman, age 60 years. Seen by Dr. Tappan after two days' illness. Was quite distended, in pain and was vomiting, symptoms indicating partial obstruction. Husband had been giving salts, with only small watery stools. Advised surgical consultation and Dr. Rogers was called, on the third day. She was then somewhat better and was not taken to the hospital until fifth day.

P. H.: Had never had an illness requiring a physician, except for two childbirths, both children now grown.

P. I.: Colicky pains, vomiting. Enemas of glycerin and salts seemed to give good results. Was difficult to say whether it was ileus or not, but after three days' obstruction became complete and operation was done.

Upper abdominal incision. Peritoneal cavity mass of adhesions. After working down to gall-bladder, this was found full of stones and transverse colon was dilated: working across to descending colon, tumor was found in descending colon, constriction involving about two inches of bowel lumen, but with only small mass. Left lumbar colostomy done. Gall-bladder drained, condition of patient not permitting more; gallstones removed through drainage tube. Patient had four storm days and then began to improve, leaving hospital in three weeks. Patient never gained sufficient to justify secondary operation for resection. The following spring had an attack of cystitis, following which she gained and was in better condition than at any previous time of illness. Husband requested removal of tumor, and in preparation for this, cystoscopy was done to rule out pyelitis; reaction from this was sufficient to contraindicate operation.

Previous to her leaving the hospital, Dr. Cathcart treated her with radium and x-ray. Radium was placed against the tumor, while she was in the hospital, it being impossible to get radium applicator into the constricted bowel. Realizing that this would be unsatisfactory, high voltage x-ray therapy was given; at beginning there was a mass easily palpable through the abdominal wall, and this disappeared after two series of x-ray treatments.

In September she developed another obstruction, with inability to secure movements through the colostomy. Was taken to hospital, but before this was done she evacuated considerable pus through the colostomy, after which the symptoms of obstruction gradually cleared up. She gradually failed and became low just before Christmas; anticipating death and to avoid this occurring on Christmas day, she was given stimulation. Following this, she unexpectedly improved until some time in January, when she developed severe pain and tenderness on the right side of abdomen, which was taken to be a metastasis. About ten days later the old gall-bladder wound became red and inflamed; under light chloroform anesthesia, this was opened and a pint of colon bacillus pus evacuated. During all this period she had increasing vomiting, which became more and more severe until the first part of February, when she died.

At postmortem only the abdominal organs were examined. At the old tumor site we were surprised to find no microscopic evidence of new growth. The abscess on the right side of abdomen had no connection with the old tumor site, nor with the gall-bladder, and the source of the infection was not determined. Around the gall-bladder, duodenum and transverse colon were dense adhesions. These adhesions probably were the cause of the vomiting, and death occurred from exhaustion. In the abdominal wall close to the site of old tumor was a pea-sized nodule. No metastases in liver, and so far as could be told through slits in the diaphragm, none in lungs.

Southwestern Medicine

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DR. C. M. YATER, Roswell, New Mexico.....Associate Editor

THAT QUESTIONNAIRE

In our January issue we printed a series of questions, designed to secure an insight into the desires of our readers regarding the kind of material which appeals most strongly to them in their official journal.

These questions were as follows:

1. What features of the journal do you like best?
2. What would you change or omit?
3. Do you want more news items?
4. Do you prefer to read about the ACTIVITIES of medical societies more than the PAPERS read at those societies?
5. Do you want more reports of County Societies and Hospital Staff Meetings?
6. Do you want these reports as complete as possible or abbreviated?
7. Should the scientific articles be exhaustive and complete, or short, forceful and practical?
8. Will you make it a practice to look over our ads and patronize our advertisers?

While we have not received as many replies to this questionnaire as we would like, an analysis of the first one hundred replies gives a good insight into the desires of our readers.

In reply to Question 1, thirty-four doctors express preference for the original articles, four of these wanting more papers by local men and one emphatically demanding papers from our industrial surgeons. Twenty-two express a preference for the society and hospital staff reports. Twenty-seven state that the present make-up of the journal suits them, which can only mean that they like a generous amount of space given to case reports and discussions. Nine like the editorials and news items best.

Question 2 found our readers very considerate or with a paucity of ideas. Seventy-three out of the 100 replies express themselves as satisfied. However, the remaining 25 per cent have given some very helpful suggestions. There is about an equal division of votes for "more county society reports" and "fewer county society reports"; some suggest that these reports be more condensed; several suggest that the articles of a general nature, "text-book stuff", be omitted; one doctor wants an occasional article on rare diseases; one suggests an occasional article in Spanish; one suggests that the names of the doctors discussing cases be omitted; one doctor wants a page of jokes; one wants **more ads** (so does the Editor); one wants more illustrations; one wants his county society secretary prodded up and made to send in news items. (Will some twenty-five county secretaries please take notice?)

To Question 3, fifty-five want more news items; thirty say we have enough.

To Question 4, twenty-seven prefer to read about the society activities, fifty prefer the papers, and twenty-three want them both.

Question 5 was an important one to the Editor, as the preponderance of sentiment will guide him in this feature of the journal. Sixty-six want more of these reports, twenty want fewer, and fourteen are satisfied with the present proportion. Since the present space given to these reports is relatively large, we conclude that eighty per cent of these one hundred respondents like this material and can stand a little more.

Question 6, referring to the society and staff reports, brought forth the sentiment from sixty doctors that they prefer these condensed; thirty want them detailed and complete, ten apparently being indifferent.

Question 7, referring to original papers, brought the almost unanimous statement that these should be "short and practical." Several doctors think that the papers should be more scientific and of a higher order—one quoting the requirements for a paper before the A. M. A. One doctor says they are already too scientific. One naive comment is to the effect that the papers in which the respondent is interested should be complete and exhaustive and the others should be abbreviated. One doctor says they should be "condensed **and** complete," adding that this IS possible.

The first impression to be gathered from these replies is quite similar to that enjoyed by a Pullman porter who was accosted simultaneously by two women passengers sitting adjacent to the same window. One requested that it be closed, as she was freezing; the other demanded that it be kept open, as she was burning up. The solution of our problem might, also, approximate that offered the porter by a philosophic commercial traveler to whom he appealed for advice. "That is easy," he said. "Leave it open until one woman freezes, then close it and burn up the other one."

Let our readers remember that this journal is the official organ of four societies. Each of these organizations should use it as their official publication, through which their officers keep in touch with all the constituent societies. Each of those societies should, likewise, use this journal as their official publication, in which is to be recorded the personal and society news, the society meeting reports, the records of interesting cases, the papers read before the societies, and the entire record of professional work and activity of any and all of the constituent county and state societies. Through this journal, each society should put itself "on the map".

The journal cannot make a great change in the original papers published. Each of the constituent societies has the right to have published herein the papers read before its annual meetings—and the county societies have the right to have published the interesting papers and case reports presented before them. The editorial management, therefore, has little choice, so long as space is available, in accepting these papers. We can only edit them as to spelling, diction and punctuation. However, one thing has been fairly definitely determined by this questionnaire; that is that the majority of these 100 respondents would prefer that we do not go outside of our own constituent societies for original papers, preferring to devote any extra available space to society and hospital staff reports.

With regard to these latter reports, the Editor will trim them unmercifully, in the future, if they are too verbose. Our readers want them abbreviated and condensed, without destroying their "meat". We will endeavor to enlarge the scope of our society case and hospital staff reports, securing more of them, from more different sources, and condensing them as much as possible.

It is very gratifying to know that our one hundred respondents, without exception, promise to read our ads, and patronize our advertisers. This will soon enable us to satisfy the demand of several that we enlarge the journal and give "more of the same".

THE ERADICATION OF DIPHTHERIA. —A very excellent summary of the results obtained with the Toxin -Antitoxin immunization in New York, and a detailed outline of the technic, is to be found in a pamphlet issued by the New York State Department of Health. This pamphlet is doubly interesting since it was prepared by Dr. Edward S. Godfrey, Chief of the Division of Communicable Diseases of the Department. Dr. Godfrey will be remembered by his many friends as one time superintendent of the Arizona State Board of Health.



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Assistant Medical Director

T. C. CROWELL, M.D.
Pathologist



ARIZONA STATE MEDICAL ASSOCIATION

Phoenix, Arizona,
April 24, 25 and 26.

Provisional Program

President's Address: Dr. C. A. Thomas, Tucson.
"The Physician, His Activities and Their Relation to Patients and the Community."

Dr. Rea Smith, Los Angeles, Calif.,
"Surgery of the Gallbladder."

Dr. E. Every Newton, Los Angeles, Calif.,
"Dietetic Indiscretions Producing and Affecting Cardiac Conditions."

Dr. Bertrand Smith, Los Angeles, Calif.,
"Use of Insulin in the Treatment of Diabetes."

Dr. James F. Percy, Los Angeles, Calif.,
"The Technic of the Prevention of Operative Pain, Shock and Adhesions Following Abdominal Section."

Dr. Fred T. Fahlen, Phoenix, Ariz.,
"Myocardial Degeneration."

Dr. Frank J. Milloy, Phoenix, Ariz.,
"Medical Treatment of Peptic Ulcer with Report of Sixty Cases."

Dr. Victor M. Gore, Tucson, Ariz.,
"Appendicitis During Pregnancy."

Dr. Charles S. Kibler, Tucson, Ariz.,
"Chronic Infective Endocarditis."

Dr. W. V. Whitmore, Tucson, Ariz.,
"Anesthesia and Anesthetics."

Dr. Philip B. Newcomb, Tucson, Ariz.,
"Basal Metabolism."

Dr. J. B. Van Horn, Tucson, Ariz.,
"Mercurochrome Treatment of Septicemia, Case Report."

Dr. I. L. Garrison, Phoenix, Ariz.,
"Extension Treatment of Supercondyloid Fracture of Humerus."
(Discussion opened by Dr. H. L. Goss.)

Dr. R. A. Hernandez, Tucson, Ariz.,
"The Pathology of Psychic Impotency in Gonorrhea."

Dr. E. J. Gungle, Tucson, Ariz.,
"Delayed Union of Fractures."

Dr. Will Wilkinson, Phoenix, Ariz.,
"Raising Resistance in Cancer."

Dr. Mary L. Neff, Phoenix, Ariz.,
"The Endocrinopathic Diathesis in Children."

Dr. Edward R. Cox, Clifton, Ariz.,
"Congenital Syphilis."

Dr. Hal W. Rice, Morenci, Ariz.,
"The Relation of the Physiology of the Thyroid to the Etiology of Goitre."

Dr. Z. Causey, Douglas, Ariz.,
"Public Health."

Dr. Oscar S. Brown, Winslow, Ariz.,
"The Physician and the Schools."

Dr. Charles S. Vivian, Phoenix, Ariz.,
"Biochemistry in Kidney Disease."

Dr. W. Warner Watkins, Phoenix, Ariz.,
"Function of the Medical and Surgical Association of the Southwest."

P. J. Spilsbury, Phoenix, Ariz.,
"The Arizona Industrial Congress."
(Discussion opened by Dr. John E. Bacon.)

The Arizona Antituberculosis Association will hold their annual meeting, in conjunction with the Arizona State Medical Association, and will occupy Thursday Evening, April 24th, their program being as follows:

Health Playlet, "The Pageant of Average Town"—by Pupils of the Adams School, Phoenix.

"The Preventoriium"—By Miss Louise G. Freeland, Phoenix; Chairman Preventorium Committee.

"Report of the Executive Secretary"—Mr. T. C. Cuvellier, Phoenix.

"Community Health and Social Service"—By Miss Ellen Harrison, R. N., Globe, Ariz.

Report will be given by one other local worker, on some phase of the organization's work.

The principal address will be a popular lecture, the speaker for which cannot yet be announced.

This meeting will be at the Woman's Club Building, and will be preceded by the Annual Dinner of the Association.

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Southwestern Medicine—April issue

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YAVAPAI COUNTY MEDICAL SOCIETY
(Arizona)

The "open" meeting of the Yavapai County Medical Society with the Medical Officers at Whipple, held at Whipple, March 6th, was the best attended meeting of the year. The following were present from the Yavapai County Medical Society: Drs. Carlson, Flinn, Linn, Looney, Southworth, Swetnam, Wilson, Taylor and Yount. From the Veterans' Hospital No. 50: Drs. Allee, Fennell, Herrick, Rene, Saunders, Malone, Allen, Arntzen, Brooks, Buck, Devine, Walker, Loewy, Fales, McCarty, Christian, McWhirt, Starns, Grieger and Carrington.

Dr. Yount presented a case of eczema (palms of hands and ankles) which had resisted all treatment until sulpharsphenamine was given intravenously. The Wassermann test was negative in this case.

Dr. J. D. Brooks presented a case of a small adenosarcoma removed from the sternum at the junction of the gladiolus and manubrium; wound healed kindly; is using x-ray treatment; no evidence so far as recurrence or metastasis. He also presented case histories of three other cases, one of fibrocarcinoma of the breast, one of fibroma of breast and the third case a neoplasm of the penis in a patient with advanced pulmonary tuberculosis. Dr. Brooks and Dr. Linn presented a case of malignant tumor of the left side of neck in a man, age 67, where operation had been refused, but the tumor had been reduced to one-third its original size by the use of x-ray. An interesting point in the clinical history of this case was the attacks of "syncope" which he had had up to six weeks ago—one attack was in a barber's chair when his head was suddenly turned by the barber. It was thought that he was dead, but his pulse gradually returned and he began to breathe and returned to consciousness after a few minutes; three such attacks were described.

Dr. Paul Christian presented a number of cases with x-ray films, illustrating spondylitis, osteomyelitis, arthritis and bone tuberculosis. He discussed fully the x-ray findings, pathology and treatment in each case.

There remain three meetings in the group contest, March 18th, April 1st and April 15th. As the groups are all closely bunched in the "eighties" an exciting finish is anticipated, after which the winning group will be banqueted by the losing groups.

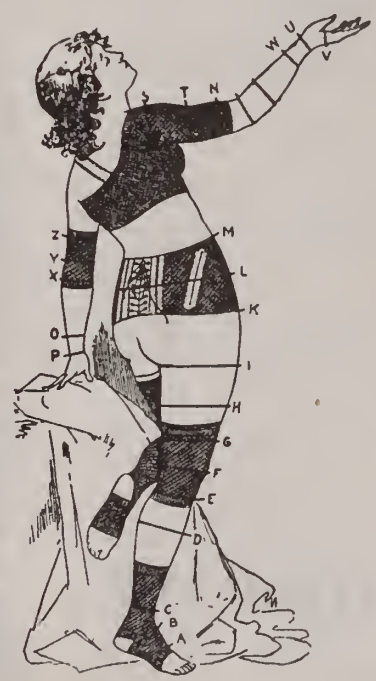
C. E. YOUNT, Secretary.

MARICOPA COUNTY MEDICAL SOCIETY
Phoenix, Arizona

Report of regular meeting of Maricopa County Medical Society, held at Deaconess Hospital, March 1, 1924.

Twenty-four members were present. Dr. Vivian presided.

Dr. H. T. Bailey presented several patients showing interesting results from operations on or about the eye. Discussion was



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carried on by members of Dr. Bailey's specialty.

Dr. Albert Soiland of Los Angeles read two papers. The first was on the theory and practice of high-voltage x-ray therapy, and stated tersely and clearly the writer's preference for this form of radiotherapy, its advantages, and its results, together with certain details of its application. The second paper took up the application of high-voltage radiotherapy to a special disease, cancer of the prostate.

Discussion was opened by Dr. Wilkinson, who raised the question of the relative merits of divided dosage as compared to a single massive x-ray dose. Dr. Watkins extended the scope of the discussion by drawing out the essayist on the matter of the detailed indications in cancer of the breast and of the uterus. He asked for an outline of technic in tonsil radiation. Several other members brought up questions to be answered.

Dr. Soiland, in replying to these, admitted that earlier in the history of this form of therapy severe and even fatal burns of the intestinal epithelium had occurred; in his own work, however, reactions had been only moderately severe, and of late he had been able to avoid even such. He stressed the point that the radiologist is not destructively competing with the surgeon or with the internist, but that rather he is developing his own new and special field in such a way as to help both. In treating tuberculous lesions the effect desired is not cell destruction, but rather selective stimulation. With cancer, on the other hand, one tries to kill the autonomous cells while sparing the host. Cancer, if localized, can be successfully attacked by surgery, x-ray, radium or by a combination of these. For advanced uterine cancer the high-voltage x-ray is a potent agent of relief, but only occasionally of cure. Even if operation is to be done, there is distinct advantage in first raying the pelvis. The indications for treating cancer of the breast are less distinct, because the limitations of operation are less certain in any given case. Palliation can always be had from radiotherapy, but if the case is operable surgery offers the better chance of cure. If the tissues are to be rayed at all, it had better be done before operation than after.

On approved motion, Dr. Carson was designated the head of a committee of five to arrange for entertainment of visitors during April general session; he to select other members and to be unrestricted in use of funds donated for that purpose.

E. W. PHILLIPS, Secretary.

EL PASO COUNTY MEDICAL SOCIETY

Minutes of a Regular Meeting held at the University Club, El Paso, Texas, February 25, 1924.

The meeting was called to order by the President, Dr. Willis W. Waite, at 8:10 p. m. There were present 25 members and 3 visitors.

The minutes of the last meeting were not read, the President announcing that this would be dispensed with if it met with the approval of the members.

The program for the evening was proceeded with, Dr. C. L. Lowman, of Los Angeles, Calif., presenting a case of spastic paraplegia. Dr. Lowman called particular attention to the very great elastic spastic gait and followed the demonstration with a very interesting lecture on flat-foot, illustrated by lantern slides. Concluding his address, Dr. Lowman gave a demonstration as to how to strap a flat-foot, one of the members of the Society acting as patient.

Dr. Waite requested that inasmuch as he considerable to do in connection with the program that Dr. Werley, take the chair for the remainder of the meeting, which was done.

Dr. P. E. McChesney reported the case of a child, ten months old, who died after an illness of about two weeks, from miliary tuberculosis, spontaneous pneumothorax, acute nephritis emphysema of the subcutaneous tissues over the chest (postmortem findings) (see case report elsewhere in this issue).

Drs. J. W. Tappan and E. B. Rogers reported the case of a woman, age 60, with intestinal obstruction and small tumor mass just below splenic flexure. (See case report elsewhere in this issue).

Dr. R. B. Homan renewed hiis request of a few weeks ago for subscriptions in connection with the educational fund of the State Association, stating that the Society had been requested to contribute not less than $5 per member, and that members of the Committee, consisting of Drs. Strong, Rheinheimer and himself would call on the various doctors in the course of a few days.

Dr. B. F. Stevens announced that a little dinner would be given on the night of March 20, 1924, in honor of Dr. Howard Thompson, one of the old time members of the Society, the dinner to be given at the Paso Del Norte Hotel at 7o'clock sharp, stating that at least 50 members were expected to attend, cost $2 per plate, and in due course of time members of the Committee would call for subscriptions.

Dr. W. L. Brown announced that Dr. Lowman would operate at Hotel Dieu Tuesday and Wednesday mornings, beginning at 8:30 a. m., and that members so desiring, should attend.

Dr. Waite stated that the suggestion had been made that the Constitution of the Society be amended whereby it would be possible to make Dr. Howard Thompson a life member of the Society, and Dr. Rheinheimer, acting as Secretary, read the proposed amendment, as follows:

"It is proposed that Article IV of the Constitution be amended to read: 'This Society shall consist of resident, non-resident, life and honorary members, as hereinafter defined in the By-Laws. The Society shall judge of the qualifications of the members, but as it is the only door to the State Medical Association and to the American Medical Association, for physicians within its jurisdiction, every reputable and legally qualified physician, who does not support or practice or claim to practice sectarian medicine, shall be eligible to membership.

"It is proposed that Chapter 1, Section 1, of the By-laws, be amended by the addition of Part 4, as follows:

"Life Members. Members in good standing who have paid dues for a period of as much as ten years continuously and who have retired, rendered conspicuous service to science or humanity or for other reason, may be made life members by an unanimous vote of the members present at any meeting.

"Members in good standing who have paid dues continuously for twenty-five (or twenty) years shall automatically become life members.

"Life members shall be entitled to all the

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rights and benefits of the Society but shall not be required to pay any dues."

Dr. Cathcart asked if under this proposed amendment the Society would have to continuously pay the State dues of the life members.

Dr. Waite suggested that the matter be laid on the table and taken up and discussed at the next or future meetings of the Society.

No other business coming before the meeting, it was adjourned at 10:10 p. m.

ST. JOSEPH'S HOSPITAL (PHOENIX) STAFF MEETING (March 13, 1924).

The meeting was attended by thirty members and several members of the nursing staff.

The proposed amendment providing that no staff member can be elected to an official position unless he has attended seventy-five per cent of the staff meetings of the preceding year, was amended to read that no staff member shall vote or hold office unless he has attended seventy-five per cent of the staff meetings. By common consent the amendment went over until notice of its presentation could be sent to all the staff members.

A communication from the "Arizona State Board of Chiropractic Examiners" addressed to the Hospital, inquiring whether chiropractors would be allowed to call upon and give treatments to patients in the hospital, if such patients requested it, and whether chiropractors would be allowed to enter their own patients in the hospital, was presented to the staff for advice.

Motion was made and duly carried, that it was the advice of the staff that chiropractors should not be allowed to bring patients to the hospital or come into the hospital to treat patients already there.

CASE 1

Case 4485.—White man, age 34. Until 3 yrs. ago was foreman in olive factory. Entered Jan. 11th.

P. H. An active tuberculosis present for past six yars, both lungs involved rather generally. For last 6 to 8 months has had high blood pressure, with albumen and casts in urine. Tuberculosis arthritis of one thumb and tarsus of one foot have completely healed under x-ray treatment.

Complaint:—Severe headaches. Began, apparently about one year ago, as a recurrent nocturnal headache, about every week or ten days. Intervals of recurrence decreased until three months ago; since then there has been more or less continuous sensation in head which every 3 or 4 days culminated in a very severe throbbing ache, sometimes resulting in comatose condition. Vomiting frequently attended these attacks, pulse dropping to 40-50 during them. Usually a suppression of urine during severe headaches. At present headache comes during afternoon and usually culminates suddenly sometime during the night. In most severe attacks, the culmina-



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tion is usually very sudden and may be followed by several days of complete relief.

P. E. Temp. 97 1-2; pulse 60; resp. 30 (sighing); B. P. 220/120. Temporal arteries distended and tortuous; pupils dilated, react to light and accommodation. Chest emaciated; dull throughout; signs of generally arrested fibroid tuberculosis, both lungs. Occasional rales throughout. Mitral systolic murmur, considerable enlargement downward to left; very sharp aortic closure. Abdomen retracted; no tumors or tenderness. Healed tuberculosis of right thumb; scars of healed tuberculosis sinuses inner aspect of left foot; ankylosis of tarsal bones left foot. Slight general adenopathy. Exaggerated knee jerks.

Laboratory Findings.—Spinal fluid under greatly increased pressure; cells 2 per c. mm. Wassermann on spinal fluid and blood both negative. Blood counts (1/12), HBg. 90, reds 5,000,000; whites 13,800. Urine (1/12), 1023, .15% alb. no casts, blood or pus cells; 1/19,—1021, .47% alb., gra. & hyl. casts,—occ. pus and 10-12 r.b.c.

Eye Grounds.—Fundus shows papillae swollen and congestion of veins; edges of optic disc are entirely obscured. Both eyes show atrophic patches of choroid and retina along the principal vessels, close to the optic disc. No evidence of albuminuric retinitis. Papillitis with evidence of past choroid-retintis.

Diagnosis.—Chronic Internal Hydrocephalus; chronic tuberculosis of lungs; chronic interstitial nephritis; hypertension.

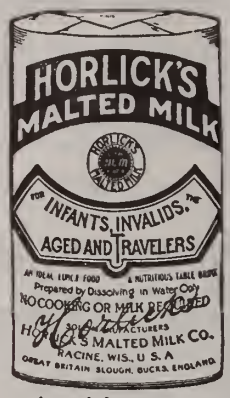
X-Ray examination on the 14th did not show evidence of intracranial tumor.

On the evidence of greatly increased pressure, corpus callosum puncture was done on Jan. 15th.

Patient died Feb. 3rd.

Discussion by Dr. Bannister:—Have taken care of this patient for three years; last fall began to be called to see him for these headaches, which were more severe during the night, usually terminating before morning, and with varying periods of remission. Week before entering hospital was called and found him in coma, B.P. 220, with every evidence of chronic nephritis. Had suggested to him possibility of corpus callosum puncture, and after using many drugs, including morphine, without much effect, during the past month he kept asking for the operation. We knew it did not offer much hope. Dr. Reese had gone over the eye-grounds twice without finding signs of pressure; the day before the operation, Dr. Bakes reported the findings recorded. Spinal puncture day before operation showed high pressure. When the puncture was done, the fluid was under great pressure and two or three ounces were withdrawn; he bled freely from the engorged pial vessels. We went in on the left side; when he came from under the anesthetic, he had a right sided hemiplegia and loss of speech. He lived three weeks and died in uremia; he got complete relief from the headaches until the last week. It was a

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Constipation

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Suggestions that point out the procedure to be followed in adjusting the diet to overcome constipation due to the stated causes are embodied in a 16-page pamphlet, which will be sent to physicians upon request. The suggestions offered are based upon careful observation extending over a long period and should be of much service to every physician who is at all interested in infant feeding.

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hopeless case from the first and operation was done to prevent his dying in pain and blindness.

Ques. 1.—Any explanation for the crises in headaches and their sudden termination?

Ques. 2.—If the spinal fluid came out under pressure and continued to flow without stoppage, why could not the relief have been obtained through spinal puncture?

Ques. 3.—Was the chorio-retinitis an old or new proocess?

Ques. 5.—If relief had been obtained, how long would you have expected it to last?

Answers:—(1) It was on the point of the crises in headache that the diagnosis of internal hydrocephalus was made. When there is some obstruction between the lateral ventricles and the third or fourth ventricles or between the fourth ventricle and the spinous space, this will cause an increase in pressure in the lateral ventricles. When the pressure is great enough, it forces by the obstruction and there is sudden relief. (2) Suppose the obstruction in the foramen Magendie, due to a tumor or a tuberculous process going on in the lining of this serous cavity and the very fine openings between the ventricles became obstructed. As the pressure becomes greater, the headaches last longer, until the internal pressure forces by. Tapping the spine would not relieve the pressure in the ventricles. (3) Dr. Bakes stated that it was an old retinitis; there was no evidence of albuminuric retinitis and do not think they were hypertension headaches. (4) This opening was made about an inch behind the coronal suture, and to one side of the sagittal suture, so as to miss the sinus; does not make much difference where it is made. This was anterior to the motor tracts and on one side, as you can enter either ventricle from one side, when they are distended. (5) Ordinarily we expect relief a few months only, though sometimes it lasts for years. I reported some years ago on a similar case of a young lady, who took up nursing afterwards; a few months ago, which is five or six years since the operation, she wrote that she had had a return of pain.

Ques. What happens if the operation has to be done again?

Ans. It can be done repeatedly. As you go in, the large blood vessels are a source of danger, but with care you can get by without trouble; have never seen any serious accident in these operations. When the pressure is relieved, you move the cannula from side to side and tear a path in the corpus callosum; the condition which causes the manufacture of the fluid and which causes the pressure, tends to keep the opening patent; as to how long that will remain open will vary with conditions.

CASE 2

No. 4546. Male, age 25. F. H. of no interest. Entered Jan. 28th.

P. H.: Three years ago had influenza and again last January, from which he made slow recovery, continuing to cough somewhat throughout the spring and summer. Last September, his doctor, though unable to make diagnosis of tuberculosis in presence of occasional slight afternoon temperature and lack of vitality, advised his going west for the winter.

Present Complaint: Has been sick for two weeks under care of another physician, with temp. from 100 to 102½; no particular regularity, though with slight tendency for evening rise and morning fall. Other symptoms indefinite; slight headache on occasions; no respiratory or gastro-intestinal symptoms. When first seen was somewhat delirious, this being the first occurrence of this symptom.

P. E.: No nose bleed, cough, faucial or nasal catarrh. No tangible chest signs. Abdomen slightly distended; no rose spots; all reflexes normal.

Laboratory: HBb. 90, reds 4,900,000, whites 7,400, 75% polys. Urine, 1025, very slight trace of alb., few hyaline casts, 6-8 pus cells. Widal reactions negative, white cells 8,500. Stool negative for blood; no typhoid bacilli in cultures from stool.

Temp. was 104.8 and pulse 100 on Jan. 29th; on 29th, temp. went to 105.4 and pulse 110.

Patient died Feb. 7th.

Discussion by Dr. Brockway: This man was sick two weeks and had distinct cerebral symptoms for nine days before death. Original diagnosis was influenza, apparently made by exclusion. Wassermann, Widal, blood culture all negative; no leucocytosis. During first two weeks, had a little temperature, slight headache and nausea, but no catarhhal symptoms. When seen by me, was half reclining, eyelids drooping, answered questions rather superciliously, and with slight aberration.

In hospital blood examinations were again negative; spinal puncture showed low pressure and negative fluid, with no T. B. Temp. 102 to 105. Headache was noted several times on chart, but patient would never admit having headache to me. Was restless and at times delirious; practically no difference in morning and evening temperature. Was in restraining sheet for five days, part of time talking in constant stream, part of time absolutely quiet. Did not have the facies of typhoid, nor the mask-like appearance of meningitis. There were times when he was highly hyperesthesic, shrinking away and crying out at the slightest touch; at other times he could be handled without complaint. The variability of all symptoms was very noticeable. For a long time legs were drawn up and could not be extended; later for three or four days he would lie perfectly straight in bed and limbs could be bent. There was a doubtful Babinski and Kernig; was constipated throughout, with slight distention;



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slight retraction, but no marked rigidity; pupils normal at first; later widely dilated, but responded to light; could not carry on a conversation, but might give intelligent answers; had retention of urine and was catheterized. There was a 24-hour period when respiration was very labored; this then disappeared. No emesis except toward the end. He died after day and half of complete immobility.

Reasons for diagnosis of encephalitis were: Spinal fluid was clear, without increased pressure and no increased cell count; no leucocytosis; no catarrhal symptoms; sleeplessness, apathy and intense variation in lethargy. Would have to differentiate from typhoid, tuberculous meningitis, brain abscess, sinus thrombosis. Every symptom pointed to cerebral involvement; he died comatose, with a normal temperature during preceding 24 hours. In brain abscess there should be intense headache, and delirium in brain abscess would be unusual. In tuberculosis meningitis you would more likely find a low temperature at the start, rising slightly and moderately with the advent of cerebral symptoms; that would subside and go up again toward death. There was never the peculiar respiratory irregularity which you find in tuberculous meningitis, except the one brief period of labored breathing. There was no vomiting, which occurs in 85 per cent of tuberculous meningitis cases. The boat-like abdomen of tuberculosis not present. Delirium in tuberculous cases is not common; the usual condition being a coma into which they go and stay.

Dr. Neff: This was undoubtedly an encaphalitis of some sort. The term "lethargica" originated in the idea not of expressing sleep, but what we might more correctly call "hebetude". The symptoms are well described in this case, hesitation in answering, reactions slow, euphoria, which is so common; "lethargic" is as close as we can come in the English language to expressing the condition. The delirium of encephalitis is apt to be distinctive, frequently euphoric; that is, speaking of pleasant things. The lack of memory, the inability to register anything on the memory for more than few seconds, the inability to get spinal fluid all suggest encephalitis. Main thing in encephalitis is to keep the patient saturated with water, which is usually difficult to do.

CASE 3

Patient 4293, entered hospital October 5th.

F. H.: Not obtained.

P. I.: Presented himself at office complaining of intense pain in lower limbs, worse at night. X-ray showed number of diseased teeth and patient was sent to hospital for extraction of these, which was done October 5th.

P. H.: Usual diseases of childhood; sleeping sickness in Vorneo ten years ago.

P. E. (several days after tooth extraction): Pupils equal and reacting sluggishly. Few scattered coarse rales throughout both lungs. Heart sounds regular. Abdomen negative.

1924 APRIL 1924

SUN	MON.	TUE	WED	THU	FRI.	SAT
NEW MOON 6th	FIRST QUAR 12th	①	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30		FULL MOON 19th	LAST QUAR 25th

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THE NEW YORK TIMES.

CHEMISTS ENDORSE GELATIN AS FOOD

Experiments With Baby Clinics Show Nutrition Value When Mixed With Milk.

An Important Aid to Digestion—Ration of Gelatin and Oats Recommended.

Special to The New York Times.

PITTSBURGH, Pa., Feb. 2.—Chemists at the Mellon Institute of Industrial Research, University of Pittsburgh, have recently completed a scientific investigation of the food value and dietetic importance of gelatin. As a result of this study they announce that gelatin is of much greater importance as a food than is generally realized. Hitherto it has been popularly regarded chiefly as something to make other foods more attractive and palatable, but now, the chemists say, it should receive more and more consideration for its own nutritive value.

The report deals with the raw materials used in making gelatin, the process of manufacture, its dietetic properties and its food uses.

An Aid to Babies.

Co-operative experiments with baby clinics, the report asserts, have shown such remarkable results from the use of gelatin in infant feeding and malnutrition of children that the serious attention of the medical profession is called for. It tells of babies who lost weight on the usual milk formulas, but recovered when 1 per cent. of gelatin was added, and of children who could take gelatin with milk or cream when nothing else agreed with them. The report also sets forth the value of gelatin for convalescents and invalids, especially those suffering from fever, tuberculosis and diabetes.

The greatest benefits derived from the use of gelatin as a food, the report adds, come when it is combined with other foods, such as cereals, bread, milk, eggs and ice cream. It points out that the addition of small quantities of gelatin to ice cream not only makes this delicacy more palatable, but actually increases its food value and makes it easier to digest.

Valuable Addition to Diet.

The report says that gelatin is a valuable addition to the diet because it is easily digested, saves protein, aids in the digestion of other foods, especially milk and milk products, has remarkable supplementary value when fed with many protein foods, and has useful physiological effects.

Gelatin is one of the easiest proteins to digest, the report adds. It also says that gelatin materially decreases the waste of body nitrogen.

"Dr. Krummacher concluded from a series of tests," the report continues, "that gelatin supplies the body with energy, and hence prevents the cleavage of body protein."

Dr. Thomas B. Downey of the Mellon Institute, according to the report, has found that 5 per cent. of gelatin in a ration containing 9 per cent. of rolled oats proteins, added salts and vitamins, is adequate for the normal growth of the animals used in the experiments. The animals fed on this ration, without the gelatin, grew at only one-half the normal expectation, but the addition of 5 per cent. of gelatin was followed by their return to normal weight and apparent health.

"This research," says the report, "shows the wisdom of the liberal use of milk with rolled oats and oatmeal as a breakfast food. In addition, it demonstrates the advantage to be obtained by including gelatin therein. This improvement can be made easily by the addition of granulated gelatin to the cooking cereal some five or ten minutes before its removal from the double-boiler."

The report also says that white wheat bread and whole wheat bread probably would be increased in nutritive value by the addition of gelatin.

The report says that Dr. Downey has listed seventy-five distinct applications of gelatin to food uses. One of the most interesting recent discoveries, it adds, is that gelatin adds to the food value of ice cream as well as making it smoother and more palatable.

Physicians, Nurses and Dietitians

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Genito-urinary negative. Skin of lower limbs dry, edematous and scaly, and skin has numerous areas of bronze pigmentation. Knee joints stiff and swollen and cause considerable pain on motion. Neurological consultant thought the findings were those of peripheral neuritis. Effort was made to withdraw spinal fluid, but needle failed to secure fluid. Blood; whites 17,400, Hbg. 65%; reds 2,570,000. Urine normal. Wassermann twice negative. X-ray of spinal column negative. Patient died on December 31st, from exhaustion apparently.

In the discussion by Dr. Vivian, he stated that this case came under his observation about thirty days after he entered the hospital, and at this time it was clearly a lesion of the nerves, and the x-ray was called for with the idea of spinal cord tumor in mind. For the same reason, Dr. Mills was called in consultation as a neurologist. Much medication was given without effect. There was a very low blood pressure, and this, with the pigmentation, made them think of adrenal disease, and hypodermics of adrenalin seemed to do more good than anything else.

Dr. Mills: There was evidently a lesion of the peripheral nerve tracts. With absent knee jerks, absent Babinski, motor paralysis of the flaccid type, means lesion in the peripheral nerves outside the spinal canal, or, if within the canal, must be beyond the gray matter of the cord. In multiple peripheral neuritis, there is usually history of some sort of toxemia and involvement of other parts than the lower extremities; also the paralysis usually increases in intensity for first few weeks, the flexors being involved more than the extensors, giving foot drop and peculiar high stepping gait; also the paralysis begins in the distant parts and extends toward the body, with muscular weakness, tenderness in muscles, pain and parasthesias, with considerable trophic disturbance. If this was not peripheral neuritis, the other possibilities were a lesion low down within the spinal canal, but still involving the peripheral tract; such a lesion, if complete, will lead to paralysis of all parts below that point. Usually in cauda equinal lesions, there is loss of bladder and rectal reflexes; anesthesia is also usually present in the perineum and genitals. Pain is a prominent symptom in cauda equinal lesions, and this was present in this case early. In both conditions, we have loss of deep and superficial reflexes. Have read in article from the Mayo Clinic that a dry tap is quite common in lesions of the cauda equina; three times out of six, they obtain no spinal fluid.

Autopsy: Heart, lungs, gastro-intestinal tract negative. Bladder filled with pus. Brain was removed and showed no gross evidence of pathology. Spinal cord removed; cord proper showed no gross evidence of pathology, but on incising the dura over the cauda equina, a mass was found filling the entire canal and extending into the foramina. Mass was made up of multiple elongated tumors, intimately connected with the nerve bundles and infiltrating them. On the posterior wall of pelvis, a number of larger tumors were found postperitoneally surrounding the lumbosacral cord.

Microscopic section; tumor masses very cellular, with little fibrous stroma; cells have deeply staining nuclei, many in process of division, chiefly spindle forms, arranged in irregular lines and bundles, apparently surrounding and infiltrating between the nerve fibres. The histologic appearance indicates a fibrosarcoma, probably springing from the supporting fibrous elements of the nerve tracts. No metastases to distant organs were noted.

Specimen of cord and tumor demonstrated by Dr. Mills. Immediate cause of death, probably pyelonephritis.

Dr. Schwartz next discussed the diagnosis and treatment of foreign bodies in the globe, citing five cases, two of these being rock and three steel. One patient from whose eye steel was recently removed by giant magnet was shown to the staff. Two other cases of steel were described, seen on successive days. One of these was a Mexican, actively syphilitic, who had piece of steel buried in the nerve head; it was dislodged by the magnet, and had to be relocalized, being found imbedded in the lower part of the iris. Patient was back at work two weeks after his injury. A boy, patient of Dr. McLoone, was seen the following day, with piece of steel in exactly the same location, which was removed by magnet, but suppuration set in and eye had to be removed. This mounted specimen was shown. One case of non-magnetic foreign body, probably rock, was described, this foreign body having been localized four years ago, but not removed. Patient recently returned here from Oregon for observation and cataract was operated on, foreign body still causing no trouble.

Drs. H. L. Goss and C. B. Palmer discussed a case of bullet lodged in the neck. This was localized by stereo-radiograms and cross wires, showing it to be posterior to the second rib and fairly deeply located. With the localization, it was cut down on and removed without difficulty. Radiographs showing the localization were shown. Dr. Palmer discussed the indications for removing various types of foreign body, based on war experience, and the differences in prognosis of steel bullets and shrapnel.

Radiographs showing a bilateral spontaneous pneumothorax were exhibited.

A case of fracture of the anatomical neck of the humerus, with complete posterior dislocation of the head upon the shaft and rotation downward of the articular surface of the head were shown by lantern slide.

Four instances of discrepancy between the surgical diagnosis and the pathologists' findings were reported, but the time having come for adjournment, these were not discussed.

DR. FREDERICK LOE, for many years physician to the U. S. Indian School at Whiteriver, has been transferred to Helena, Oklahoma.



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NEW MEXICO PERSONALS AND NEWS

DR. J. A. Smith of Roswell spent two weeks in Albuquerque during March, reviewing the work and duties of Health Officer.

DR. HARRY NELSON of Illinois, recently visited the Pecos Valley, renewing old acquaintances. Dr. Nelson was for many years a resident of the valley, and his many friends there took great pleasure in visiting with him again.

DR. W. R. TIPTON of Las Vegas underwent a severe operation in January, from which he has gradually recovered, and will soon be back in the harness again. Dr. Tipton is well known throughout the state, having been the first secretary of the New Mexico Medical Society, and has been an ardent supporter of organized medicine during all of his professional life.

DR. E. B. SHAW of Las Vegas, was recently operated for inguinal hernia, and is reported as doing well. Dr. Shaw is the president of the Las Vegas County Medical Society and one of the satnd-by members of the state organization.

DR. W. T. JOYNER of Roswell, a member of the State Board of Medical Examiners, attended the April meeting of the Board in Santa Fe.

DR. ALLEN B. KANAVEL of Chicago spent several days in Albuquerque recently, visiting Dr. and Mrs. Woolston. For several years Dr. Woolston worked with Dr. Kanavel in Chicago.

DR. P. G. CORNISH, SR., after several days' illness, is back at work.

DR. EUGENE W. FISKE of Santa Fe was a recent visitor in Albuquerque, taking the opportunity to renew acquaintances with Dr. Kanavel.

MRS. C. G. DUNCAN of Socorro, New Mexico, was recently operated upon in one of the hospitals in Albuquerque. She is reported as recovering nicely.

DR. J. P. KASTER of Topeka, Kansas, Chief Surgeon of the A. T. S .F. Ry., spent two days in Roswell early in April, and while there visited the Chaves County Medical Society. Dr. Kaster is well known throughout New Mexico, and it will be welcome news that he has promised to attend the state meeting at Santa Fe and present a paper on the subject of "What Is Traumatic Hernia?"

DR. P. RAMOS-CASELLAS, formerly of Fort Bayard, New Mexico, has removed to El Paso, where he has purchased the equipment of Dr. W. S. Larrabee, and will hereafter engage in private practice, specializing in radiology and electrotherapy.

The many friends of DR. LARRABEE will regret to learn that ill health has forced his retirement from practice for an indefinite period.

DRS. THOMAS, DAVIS and SHULTZ of Tucson, Arizona, have moved from their old location on Pennington street to their spacious new quarters at 27 South Scott street, mention of which was made in these columns several months ago.

ARIZONA PERSONALS AND NEWS

DR. GEORGE DOCK of Pasadena, Calif., recently visited the Maricopa County Medical Society, talking to them on the subject of "Enteroptosis." Dr. Dock found several old friends and associates among the medical men of Phoenix, who joined with him in a regular Missouri reunion. Drs. Fahlen, Sweek, O. H. Brown and Mills were among the acquaintances of Dr. Dock who greeted him. Dr. Dock quoted extensively from the work of the late Dr. R. Walter Mills, who placed the question of the significance of the position of the abdominal organs on a rational basis.

DR. EDWARD R. COX, formerly of Fresno, California, has located at Clifton, Arizona, having charge of the hospital department of the Arizona Copper Company.

DR. W. C. HACKETT, a negro physician of Phoenix, and a member in good standing of the Maricopa County Medical Society, was recently put to considerable embarrassment by a charge of violation of the Harrison Narcotic Act. Investigation developed that this charge was made by a prostitute dope fiend who was refused morphine by Dr. Hackett and made these charges in retaaliation. Charges were dismissed when they came before Commissioner Henke. The County Medical Society had, in the meantime, declared its belief in his innocence and appointed a committee to assist him in defending his name against this attack.

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DR. W. F. CHENOWETH of Nogales, president of the State Medical Examining Board, was in Phoenix the first week in April attending the regular meeting of the Board.

DR. OSCAR A. BROWN of Winslow, district surgeon of the Santa Fe lines, was in Phoenix during March on business connected with the hospital department under his charge. Dr. Brown is engaged in a comprehensive campaign of public health education in the rural districts of northern Arizona and New Mexico, using a balopticon to illustrate his points.

DR. A. W. VANNEMANN, who left Douglas several months ago, to locate in Mexico, is reported to have returned to the border city and resumed his practice there.

THE SOUTHWESTERN DIVISION OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will hold its Fifth Annual Meeting in El Paso, Texas, on May 5th, 6th and 7th. A very excellent program will be presented under three departments, viz.: Physical Science, Biology, and Social Science. The Chairman of the Executive Committee is Dr. E. C. Prentiss of El Paso.

DR. EDWARD SHAPIRO of Chicago was a visitor in Phoenix during March.

DR. BYRON B. DAVIS of Omaha, Nebraska, professor of surgery at the College of Medicine of the University of Nebraska, spoke to the staff of the Deaconess Hospital at Phoenix recently, using the subject of "Progress in Cancer Treatment." Dr. Davis handled this subject in a very pleasing and convincing manner.

DR. B. F. JEFFERS, formerly of St. Francis, Kansas, has located at Peoria, taking up the practice vacated by Dr. R. C. Martin, who moved into Glendale and purchased the property of Dr. Pearson.

DR. CHARLTON JAY, for several years located at Morenci, is now located in Everett, Washington. His interest in Arizona is still mainetained, and he is continuing his membership in the Southwest Association, in order to receive the journal.

DR. F. H. SLAUGHTER of Miami and DR. J. L. WALES, formerly of Globe, both of whom have located in Long Beach, California, have entered into an association, practicing as the firm of Slaughter and Wales.

DR. WILLIAM D. McFAUL, surgeon of the U. S. P. H. S., is reported as being now located at the U. S. Veterans Hospital No. 51, in Tucson.

DR. HAL W. RICE, formerly of Santa Monica, Cal., has taken the position of surgeon for the Phelps Dodge Corporation at Morenci, Arizona.

DR. CHARLES H. LAUGHARN, formerly of Salida, Colo., has located in Morenci, Arizona.

DR. VERNON V. ROOD, who was licensed in Arizona in 1920, is now located at Kingman, Arizona.

THE SOUTHWESTERN GOLF TOURNAMENT, held the first week in April, at the San Marcos course, at Chandler, Arizona, found several prominent members of the medical profession participating. The chief contender for the title of Southwestern Champion was Dr. James Vance of El Paso, who has held the title five times, but who went down this year before Charles McArthur of Phoenix. In the final rounds of play Dr. Vance defeated Dr. George Goodrich of Phoenix, and McArthur had a hard battle with Dr. Kim Bannister of Phoenix and a spectacular twenty hole match with Dr. F. C. Jordan of Chandler. Dr. R. N. Looney of Prescott was winner of the fourth flight.

DR. E. W. PHILLIPS, the secretary of the Maricopa County Medical Society, physician to St. Luke's Home, has recently entered the field of poetry. In response to a query from Albuquerque relative to the advisability of sending a hay fever patient to Bisbee in March, responded in the following strain:

"March 11.

In Bisbee fields the cottonwoods
Right now deliver up the goods
In bucketfuls; and on the breeze
Resounds the harsh hay-feverish sneeze
Of such as are not immunized.
Your patient, then, should be advised
This month her visit to forego.
If she persists, then let her know
By Dr. Bridge she should be seen
(Chief surgeon of the Copper Queen).
In Bisbee there is none so good
As he at squirting cottonwood.

A NEW ANTISEPTIC DRESSING

The chlorine compounds seem to have been superseded by a new synthetic chemical antiseptic, and one, it is claimed, which does not labor under any disadvantage with respect to the preparation of solutions. This new product contains no chlorine, but bromine instead. Chemically it is known as dibrommalonyl-ureide; commercially as Dibromin. Dibromin is offered by Parke, Davis & Co., and, like other specialties of this house, is offered on the strength of both laboratory and clinical experiment.

We are told that it has been used in upwards of five thousand cases, such as cellulitis, abscess, carbuncle, infected burns, trophic ulcers, suppurating lymph glands, compound fractures, surgical infections, dermatitis venenata, etc., and with such success that it is now recommended in all sorts of accessible infectious processes—on the same principle as that which governs the application of the chlorine compounds. It has the unusually high phenol coefficient of 105.

The one outstanding difference, however, between this new antiseptic and older ones of the same class is the ease with which it can be made ready for use. Add the Dibromin to the water, and shake a little; that is all. It is put up in 6-grain capsules. One capsule to a gallon of water makes a 1:10,000 solution.

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New Mexico Medical Society Meeting in Santa Fe May 27, 28 and 29.

See Editorial Section for Program.

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VOLUME VIII MAY, 1924 No. 5

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents—See Advertising Section Page 1

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CONTENTS

ORIGINAL ARTICLES

PRESIDENTIAL ADDRESS, ARIZONA STATE MEDICAL ASSOCIATION, "THE PHYSICIAN, HIS ACTIVITIES AND THEIR RELATION TO THE PATIENT AND COMMUNITY" 201
Dr. C. A. Thomas, Tucson, Arizona. —

SUBACUTE BACTERIAL ENDOCARDITIS 203
Dr. Frederick A. Willius, Mayo Clinic, Rochester, Minnesota.

DIAGNOSIS IN CASES OF FOREIGN BODY IN THE LUNG; WITH CASE REPORTS (Illustrated) 207
Dr. Harry L. Baum, Denver, Colorado.

SOME THINGS TO CONSIDER IN DETERMINING WHAT TEETH SHOULD BE EXTRACTED.. 212
Dr. Thomas L. Gilmer, Chicago, Illinois.

HELIOTHERAPY IN SURGICAL DISEASES 215
Dr. Oscar S. Brown, Winslow, Arizona.

THE ASSOCIATION OF PSYCHONEUROSES AND ENDOCRINE DISFUNCTION..... 219
Dr. S. D. Swope, El Paso, Texas.

MEDICAL HISTORY SYMPOSIUM 221
LEOPOLD AUENBRUGGER 223
Dr. E. A. Duncan, El Paso, Texas.
RENE THEOPHILE HYACINTHE LAENNEC 224
Dr. Hugh W. Crouse, El Paso, Texas.

ATYPICAL ADENOCARCINOMA OF THE HYPOPHYSIS; CASE REPORT (Illustrated)..... 227
Drs. Schuster and Schuster, El Paso, Texas.

EDITORIAL AND SOCIETY NEWS

NEW MEXICO MEDICAL SOCIETY PROGRAM..... 233
ST. JOSEPH'S HOSPITAL (PHOENIX) STAFF MEETING..... 236
ST. MARY'S HOSPITAL (ROSWELL) STAFF MEETING..... 238
BERNALILLO COUNTY MEDICAL SOCIETY 239
McKINLEY COUNTY MEDICAL SOCIETY 240
ST. MARY'S HOSPITAL (GALLUP) STAFF MEETING 242
HOOF AND MOUTH DISEASE 244
ARIZONA STATE MEDICAL ASSOCIATION MEETING IN APRIL..... 250
PERSONALS 252

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THE PHYSICIAN, HIS ACTIVITIES AND THEIR RELATION TO THE PATIENT AND COMMUNITY*

C. A. THOMAS, M. D., Tucson, Ariz.

History reveals that the practice of medicine and surgery far antedates the Christian Era and has always been marked by alternating periods of progress and lethargy, its activities enshrouded in a veil of mystery—an offspring of ignorance—shared in varied proportions by the physician himself and the public.

The present period of modern or scientifc medicine began about the middle of the 19th century, and it was about this time (1856 and 1857) that the American Medical Association came into being—an organization which, since its inception, we find firmly linked with every movement directed toward real progress in our profession. This being the case, we are led to the conclusion that the purposes of this Association today were in the minds of its founders almost three-quarters of a century ago. Its glorious achievements over this long period of time and its broad scope of activities today, are testimonials to the righteousness of its purposes and prophesies of its future greatness.

The elimination of the low grade medical school, the standardization of the better institutions and the raising of standard of educational qualifications for matriculation — these three stand out in letters of gold in the long list of accomplishments credited to this great Association.

The activities of its Councils on Chemistry and Pharmacy, Health and Public Instruction, the publication of the Journal and other scientific magazines, including the journal of individual and public health "HYGEIA," serve to keep alive our enthusiasm in the work of our parent organization.

Through its component organizations, the state and county societies, each individual member is given an ever present opportunity for self development and he shoulders a corresponding degree of responsibility in the success or failure of his organization.

To exactly what degree the American Medical Association has influenced the progress of the medical profession and the science of medicine in the United States is impossible to estimate but I feel sure that we are all inclined to give it full credit for its generous portion in the surmounting of many difficult medical problems.

The obtaining of safe water supplies, sanitary sewer systems, clean milk, nurses in our schools, the teaching of the importance of physical training, the elimination of the red light districts, and the closing of the saloons, were all a long stride forward in the preservation of the public health.

(*President's Address before the Arizona State Medical Association at the Annual Meeting, held in Phoenix, April 24-26, 1924.)

The subjugation of typhoid, diphtheria, yellow fever, plague, malaria, meningitis, smallpox and diabetes; and the reduction of the death rate in tuberculosis with the consequent increase in longevitiy to the race—all this needs but little comment.

We, as members of the medical profession, owe a double obligation, first, to our patients and the community at large, and second, to the American Medical Association and its component organizations in their larger scope of activities. Fortunately, these obligations, though dual in number, can be discharged jointly and he who is best qualified to discharge the first obligation is the better prepared to fulfill the second.

All this resolves itself into a discussion of the essential qualifications of the individual for membership in the Association or Society. For the purpose of getting down to fundamentals I venture to set forth as an unrecognized fact that "we are not entirely what we are because we are physicians, but we are physicians because we are what we are." If this hypothesis is correct, we then stand on common ground and have for our footing the principles laid down almost two thousand years ago by the "Lowly Nazarene," i. e. "Respect the truth and love your fellow men."

Every physician who stands on the common ground referred to, will find his natural inclinations to be the relieving and cutting short of all suffering; but there is a broader scope which, while not so dramatic in its aspects, is nevertheless an essential part of his obligation. I refer to the educational features of the profession, which should at all times be borne in mind. Every physician should be a teacher. Patients are entitled to be taught as to the nature of their illness, ways of avoiding recurrences and methods of preventing the spread of contagion to others; also, they should be informed as to the profession's limitations in curing disease with drugs; in short, teach them that many diseases can be prevented and many more cured only by right living and the maintaining of good hygiene, all of which should be a matter of practice with every one and not used only as a prescription to effect a cure and then be laid aside.

Another essential thing we should all consider a factor in our dealings with patients, is COMMON HONESTY. The word "honesty" in this connection has no relation to dollars and cents, but rather I would have it applied in the sense that "he who steals my purse steals trash," and add that the physician who fails to fulfill all his obligations, both medically and educationally, to those depending on him, develops doubts in the minds of the laity, creates a loss of faith and a consequent lack of confidence in the profession as a whole.

If a physician would be qualified, he must be well educated and must then continue in the pursuit of knowledge. The county society together with the state and national associations probably offer more to him than any other agency in the process of keeping up-to-date, and they should be conducted with this in view. All members should be impressed with the idea that it is their duty to devote certain portions of their time to promotion of scientific programs of merit, that the meetings may be made of educational value to those in attendance as well as to promote a fraternal feeling. Further activities for county societies will suggest themselves, and things of an educational nature for the public can often be done through the society to greater advantage than by any other means.

If the societies are to be used as a means of education and uplift in the future, which function they have performed well in the past, there should be certain essential safeguards thrown into and around them. I fell that the standard in our societies should be such that membership in them should be considered, by both the medical fraternity and the public, as a requirement before any one be accepted and given the much desired recognition as a physician. In other words, have the society made up of only HONORABLE and UPRIGHT

men, who are striving to live literally by the Code of Ethics and leave the CHEAT, DOLLAR CHASER, ADVERTISER, and PATIENT STEALER, outside with the abortionist, and let them be branded for what they are so that they cannot use the society and their association with honorable physicians as a cloak with which to cover their real character.

I conceive it to be the duty of every physician to discharge his obligations to the public in a conscientious manner. Let your motto be, "Do the best you can." Strive diligently to make an accurate diagnosis, which is essential to proper treatment and advice. The patient's confidence in you, demands this effort. To take advantage of this confidence and to abuse it is quackery in the nth degree. If we could rid the medical profession of all those who see in misery and suffering of patients only the gleam of gold, but little further effort would be needed to have all people look to the regular profession for guidance in matters of health.

As President of our State Association, I wish to urge upon the members a conscientious, intelligent discharge of your obligations to your patients, the community and county society, and through it the state and national organizations, that through these agencies the medical profession and practice of medicine may be elevated to the point where it will receive the unanimous recognition it deserves of all people everywhere.

SUBACUTE BACTERIAL ENDOCARDITIS

FREDERICK A. WILLIUS, M. D., Section on Clinical Cardiology, Mayo Clinic, Rochester, Minnesota

During the last few years renewed interest has been displayed in the investigation of subacute bacterial endocarditis. This has been, in part, due to the evident increase in the disease following the world war, and following the severe pandemics of influenza and, in part, to renewed endeavors in the treatment of a disease invariably terminating in death.

ETIOLOGY

Subacute bacterial endocarditis, in most instances (95 per cent) is due to streptococcus viridans.[3,4] In a small percentage of cases (5 per cent) Libman was able to isolate the bacillus influenzae from the blood. In rare instances the gonococcus may produce this clinical picture, although the course is usually acute, rather than subacute. It is important to appreciate that subacute bacterial endocarditis is a disease that is invariably engrafted on heart valves that have been previously damaged, usually by rheumatic fever. Congenital defects, valvular atherosclerosis and syphilitic processes may also be the seat of secondary bacterial invasions. The mitral valve is affected more often than the aortic, and involvement of the tricuspid and pulmonic valves is rare (1 per cent).

CLINICAL CHARACTERISTICS

The clinical picture of subacute bacterial endocarditis is characterized by a rather irregular intermittent fever; the temperature varies from 97 degrees to 101 degrees and 103 degrees F., and may remain normal for several consecutive days. The patient looks very ill and the face frequently has an anxious expression, exaggerated by the ensuing emaciation and pallor. Examination of the heart reveals the pre-existing valvular lesions and, during the active stage of infection, all the objective signs are likely to be augmented by the increased circulation rate attending the pyrexia, and also by the increase in cardiac damage. Embolic processes often occur during the active stage of the disease; these have been carefully studied and re-emphasized by Libman. Petechiae in the skin and mucous membranes, particularly the conjunctivae, occur, usually having white centers. They are, however, more frequently observed in the acute bacterial type. Occasionally small, slight-

ly nodular hemorrhages, which are not tender, occur in the palms of the hands and the soles of the feet (Janeway lesions), but they are more common in the acute form. Tender, cutaneous nodes, the so-called Osler nodes, may occur, also gross emboli in the vessels, resulting in visceral infarction. Cerebral embolism, embolic or mycotic aneurysms, purpura, and atypical erythematous lesions are other complications of the disease. Marked and quite persistent secondary anemia is present, the hemoglobin varying from 20 to 60 per cent, while the average readings are about 40 to 45 per cent. The erythrocytes are proportionately reduced, ranging from 2,000,000 to 4,000,000. Leukocytosis never occurs unless the disease is complicated by sepsis, the leukocyte count usually being from 5,000 to 7,000. The anemia is probably due to damage of the blood-forming organs. The course of the disease varies from a few months to a year, or, rarely, more.

Patients dying from subacute bacterial endocarditis (streptococcus viridans) usually have acute glomerulonephritis with characteristic lesions in the glomeruli, first described by Loehlein and later fully studied and verified by Baehr and Lande. They describe swelling of the endothelium of the glomerular capillaries, with consequent complete avascular obstruction of the loops, resulting in disintegration and active proliferation of the epithelium of Bowman's capsule, so that in many glomeruli the capsule is occupied by a crescentic mass of swollen and proliferated cells. The pericardium is practically never affected in the subacute bacterial form of the disease. Blood-culture studies during the febrile stage of the disease always reveal the infecting organisms. Sometimes repeated blood cultures are necessary, and these should be taken during the time of maximal temperature.

PATHOLOGY

Libman's careful and painstaking study of large numbers of hearts from patients dying of subacute bacterial endocarditis has done much to clarify and to group the pathologic findings. The lesions may be small or large, but are always larger than the small linear verrucous lesions of rheumatic fever. Ulceration rarely occurs and, when present, is usually limited to the aortic flaps. When the mitral valve is involved, the process involves the chordae tendinae by progressing anteriorly and downward, and invades the endocardium of the left auricular by spreading posteriorly and upward. Numbers of chordae tendinae may be severed by the inflammatory process. The inflammation is productive, resulting in fibrosis, sclerosis and round-cell infiltration.

The vegetations are composed of blood platelets containing large numbers of bacteria, particularly on the surface. The newer vegetations are almost entirely composed of bacteria. The older vegetations often show evidence of healing, the base particularly being invaded by fibrotic and, occasionally, calcareous processes. In the myocardium, interstitial collections of round-cell infiltration often occur, the so-called Bracht-Waechter bodies, which must not be confused with the perivascular round-cell infiltrations or Aschoff bodies seen in rheumatic fever.

SPONTANEOUS BACTERIA—FREE STAGE

Libman has shown that the bacteria in subacute bacterial endocarditis may disappear spontaneously from the lesions and that the lesions may partially or completely heal. The fact, however, that the bacteria are no longer present does not imply that the patient recovers, for the heart may be so severely damaged that it can no longer carry on its function properly, and he may die of heart failure. There is a constant danger of detaching vegetations; this is frequently the cause of death during the bacteria-free stage of the disease. Likewise, in many instances, the kidneys and blood-forming organs have been so irredeemably injured that life can only be maintained for a certain length of time.

Chronic diffuse nephritis is a characteristic finding in patients who die during the bacteria-free stage of the disease. The spleen invariably is enlarged; sometimes it is enormous. The malpighian corpuscles are often found to be enlarged and distinctly hyperplastic. Petechiae are occasionally seen in the skin and mucous membranes, but are much less common and fewer in number than during the bacterial stage. Purpura is only occasionally seen, and tender cutaneous nodes are very rare. The course of the spontaneous bacteria-free stage is not definitely established, but may be from a few months to one or two years.

The most common causes of death are cerebral embolism, uremia, progressive anemia, heart failure, and intercurrent infections, particularly pneumonia.

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DIAGNOSIS IN CASES OF FOREIGN BODY IN THE LUNG; WITH CASE REPORTS*

By HARRY L. BAUM, M. D., Denver

Here, as in so many other conditions which eventually come into the hands of the specialist, the first responsibility falls upon the clinician and it is his duty to at least make the preliminary diagnosis upon which further conduct of the case is based. It is therefore fitting, and should be of value, to consider the subject purely from the standpoint of diagnosis and without reference to the mechanical problems of removal; particularly before a gathering made up largely of those who have no interest in the latter.

The value of such a study as this is, in a way, relative and depends somewhat upon the frequency with which such cases are encountered in practice, but as no statistics are available on this point it must be approached from a purely theoretical angle. We are no doubt impressed by the immeasurably greater apparent frequency with which these cases are encountered compared with the experience of a number of years ago, and with the number of cases of supposedly chronic pulmonary disease which upon investigation prove to be dependent upon the presence of a foreign body in the air passages. The proper diagnosis of one such case would more than compensate for the time spent in the study of the subject and it is reasonable to believe that the apparent increase in the number of cases encountered is due to better diagnosis and the more frequent use of the x-ray in the study of pulmonary conditions and not to an actual increase in the number of cases occurring. I think, therefore, that it will be conceded that the importance of this subject from the standpoint of the general profession can hardly be overestimated and that no amount of emphasis placed upon it could be considered superfluous.

In reviewing the histories of cases of foreign body in the lung we find a very great variety of experience, ranging from entire absence of history to one as definite and positive as might be desired. When of recent occurrence it is rarely that some history is not to be had, usually that

(*Read before the New Mexico Medical Society, Albuquerque, New Mexico, June 20, 1923.)

of the accident, followed by paroxysmal cough and dyspnea, both of which may later subside as the air passages become accustomed to the presence of the intruder. This deceptive quiescent stage is the source of a mistaken diagnosis in many instances, for it is entirely possible that following the aspiration of a foreign substance the mucosa of the air passages may develop a tolerance to its presence which for a certain time results in an absence of symptoms. This period of quiescence is variable and depends greatly upon the nature of the intruder and its location and position and whether or not it is freely movable.

Frequent recurrence of the cough, however, is very likely to occur in cases in which the foreign body is movable in the air passages and paroxysmal dyspnea is particularly likely to result if the foreign body is coughed up against the under surface of the vocal cords with resultant spasm, or is so located and of such shape that its movement may alternately open and close the passage in which it lies. Bloody expectoration may accompany the cough if the foreign body is a sharp one, although a history of this type is uncommon in the recent cases.

It should not be forgotten, in this connection, that dyspnea may also supervene from laryngeal inflammation and swelling resulting from the laryngotracheitis which follows the inspiration of certain organic substances which are irritating to the mucous membranes, or, possibly, from local irritation of the larynx resulting from the act of inspiration of the foreign body.

There are, of course, a few cases in which the history is entirely negative. Such are notably very young children, those aspirating the foreign body while anesthetized, the insane and those in whom the accident occurred at such a distant period that the accompanying circumstances have been forgotten. This negative history, or a history suspicious of aspiration of a foreign body which has been followed by the stage of quiescence, should not be permitted to mislead the physician should there be any reason to suspect the presence of an intruder in the lung.

If the accident is of remote occurrence the history may be entirely misleading, as would be expected in a condition which had gone for months or years unrecognized. It is true, however, in most cases that some history can usually be elicited, although it is usual that the occurrence has been dismissed from the mind of the patient or family as of slight importance, and the subsequent developments have been attributed to the onset of some form of pulmonary disease, most frequently tuberculosis, which the history closely resembles. After the period of quiesence of some weeks or months the patient is likely to develop a gradual onset of cough, expectoration, temperature, general loss of weight and strength and with the possible occurrence of pulmonary hemorrhage, usually of slight amount. These symptoms most often bring the patient to his physician and it is only after a painstaking study of the history that any facts pointing to the possibility of foreign body may be elicited.

We are thus brought to the consideration of symptomatology in these conditions and may first consider the symptoms caused by the presence of a foreign body in the lung for a brief period. These symptoms are dependent upon both the nature and location of the intruder and in the case of hard substances they are usually limited to the cough, dyspnea and possible bloody expectoration already referred to as points to be noted in the history, with slight fever in some cases. The febrile reaction is varied in these cases and may be entirely absent in the very early ones, the temperature gradually rising with prolongation of the length of sojourn, especially when an airway is obstructed. It may be particularly high in those violent bronchial reactions set up by the irritating effects of organic substances, and this type of

case is frequently severely septic even in its very early stages.

In addition to these symptoms we may at times observe the peculiar respiratory noise termed by Jackson[1] the "asthmatoid wheeze". It is a sound heard during expiration, asthmatic in character, and caused by the vibration of air passing around the foreign body. It can be detected by the unaided ear in front of the open mouth of the patient and is sometimes loud enough to be heard across the room. Its presence is practically diagnostic of foreign body in the lung, but its absence is valueless as negative evidence because only certain forms of foreign bodies can produce it and then only in certain locations.

In the cases of foreign bodies of prolonged sojourn in the lung, the symptoms are of entirely different character and have nothing especially characteristic to distinguish them. Aside from the evidences of chronic pulmonary disease already mentioned and due to the secondary changes taking place in the lung, such as chronic inflammation, suppuration, bronchiectasis and abscess formation, there is little in the symptomatology of these cases which may be considered as characteristic. Pleurisy and the clubbing of the fingers and toes commonly seen as an accompaniment of chronic pulmonary disease may be present along with the general physical deterioration consequent upon pathological changes taking place in the lung.

In passing to a consideration of the physical signs in these conditions I feel a certain hesitancy natural to one who knows that his personal observation is of no value. But as the subject is of great importance in this connection I shall take it upon myself to set down the observations of others made in the study of cases in my series.

Here, as elsewhere, there is a great variety in the findings in different cases of foreign body in the lung occasioned by the variations in character of substances inhaled and their location. There are some cases in which no physical signs whatever are to be noted, with the possible exception of decreased expansion on one side. McCrae[2] states that this sign is to be seen in practically all cases and is almost certain to be present when any reaction has followed the accident, even persisting for a time after removal of the foreign body. It is, of course, not to be depended upon in foreign bodies in the trachea.

With recent metallic foreign bodies and those of mineral composition the reaction to their presence is, as a rule, slight, and physical signs correspondingly so, but it is not uncommon to hear fine rales over a limited area persisting only so long as the foreign body remains in situ.

With foreign bodies consisting of organic substances there is certain to follow a more or less violent reaction to their presence. This reaction results in a generalized bronchitis involving first the lobe in which the foreign body is located, extending later to involve the entire lung on that side and even to the opposite side in the more serious cases. The physical signs are those of the bronchitis with many coarse bubbling rales and without change in percussion or fremitus. So generally has this reaction been observed that the condition, particularly in the case of peanut kernels, has been given the name of "peanut bronchitis" or "arachidic bronchitis".[3]

In those cases resulting in complete occlusion of a bronchus by an impacted foreign body, fairly characteristic physical signs are developed. The occlusion results in the absorption of secretion in the obstructed portion of the lung so that numerous rales are usually present over the area involved, of variable character, and clearly audible. Breath sounds are distant or absent and the area is dull or flat on percussion. It is in these cases that the mistaken diagnosis of pneumonia is often made, although a careful study of the physical signs should cast doubt on that diagnosis in most cases.

In cases of friable substances remaining in the air passages for prolonged periods, mainly the organic substances, violent bronchitis supervenes as previously mentioned, followed, usually, by abscess formation. Such abscesses are usually multiple and result in a more or less disseminated pulmonic suppurative inflammation terminating in chronic invalidism or death. In such cases there is, of course, nothing characteristic in the physical findings, they being those of the pathological condition which has developed.

Hard substances remaining in the air passages for prolonged periods cause a slower pathological change resulting in bronchiectasis or abscess formation in practically every case. Here, as in the preceding class of cases, there is nothing in the physical signs to suggest the nature of the trouble. There is much, however, in the history and general study of the case, and particularly in the absence of definite evidence leading to a specific diagnosis, to cause the careful observer to suspect the possibility of foreign body of long sojourn.

Aside from the development of the use of the bronchoscope, probably the greatest advance in the study of these conditions has been made through the use of the x-ray. Practically every case of suspected foreign body in the lung should have the benefit of an x-ray examination with the possible exception of cases which are of such an emergency character as not to afford the time. In cases in which the foreign body is impervious to the x-ray the diagnosis is easily and quickwly made, but unfortunately all are not of that description and here the evidence may be entirely negative or may prove to be only of such nature as to assist in the final decision. In this class should fall those cases in which the pathological change taking place in the lung is indicative of the presence of a foreign body even though the intruder itself cannot be seen. This is particularly true in cases of foreign body of long sojourn resulting in abscess formation and in those so located as to cause obstruction of a bronchus with accumulation of secretions and absorption of air. In these cases of so-called "drowned lung" the picture is that of a cloudiness of the lung structure not the same as that caused by the solidification of a pneumonia, but indicative of early pathological change which is unmistakable.

Other sources of error arising in the radiographic study of these cases are those in which the foreign body is so thin and taken at such an angle that it does not show in the radiograph or when so placed that it is



Figure I. Radiograph, Case 1. Heart and great vessels displaced to right, diaphragm pulled up on right, right lung partially collapsed. No fluid or pneumonia. Foreign body not visible. Changes due to absorption of air from right lung.

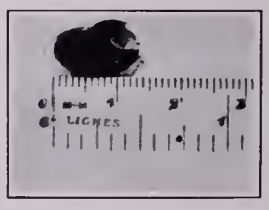


Figure II. Foreign body removed from Case 1. Note large size after drying and shrinkage. This foreign body was much larger after its absorption of moisture while in the lung.

overlaid by shadows of greater density.

A few cases illustrative of most of the points referred to in the foregoing have been selected from the writer's series and are reported herewith. No attempt will be made to give these case reports in detail except in so far as is applicable to the present subject.

Case 1. F. R., referred by Dr. Brown, had been considered doubtful as to the presence of a foreign body in the lung. The child was two years of age and in play had been buried in a pile of beans, following which he had a choking spell which rapidly subsided, as did most of the cough which accompanied it. When first seen, four days after the accident, some cough was still present, but there was no evidence of respiratory difficulty. The temperature was 101. Dr. G. M. Blickensderfer examined the chest twice before bronchoscopy was done and on the first examination found that no air was entering the right lung and that the right side was tympanitic. A subsequent examination made some twelve hours later found the right side to be entirely flat, still with absence of breath sounds, and no rales. Dr. W. W. Wasson's interpretation of the x-ray corroborated these findings, as the diaphragm on the right was pulled up very noticeably, the heart and large vessels were displaced to the right and the right lung appeared to be in a state of partial collapse. There was no evidence of fluid or of pneumonic consolidation. Respiratory movement on the right side was definitely inhibited. The left side was entirely normal in every way. (Fig. I).

These physical findings, together with the x-ray, were taken to indicate the presence of a foreign body lodged in such a way as to obstruct the entrance and exit of air from the right main bronchus, with consequent absorption of air from the lung on that side and partial collapse.

Bronchoscopy was done without anesthesia and the bean removed. It was found to be so located at the bifurcation that it completely plugged the opening of the right main bronchus and absorption of fluid had caused it to swell so that it was tightly impacted in this location. (Fig. II.)

This case illustrates the importance of following up a suspicious history, absence of definite and positive symptoms some days after aspiration of a foreign body, the diagnostic value of a careful physical examination in some of these cases and the importance of x-ray findings even though the intruder itself may not show in the picture.

Case 2. B. W., referred by Dr. H. R. McKeen. This little patient, a baby of 16 months, had been given some popcorn to eat about five days before. It had apparently choked on the corn, but the symptoms had subsided rapidly and the parents had thought nothing more of the occurrence. Subsequently, however, the baby had developed a peculiar noisy breathing, with some cough at times, and without other evidence of illness. Physical examination by Dr. McKeen revealed nothing in the chest except occasional sighing sounds heard through the stethoscope when the peculiar "asthmatic" breathing was heard through the mouth. This peculiar breathing was plainly heard in the room at some distance from the patient and consisted of an asthmatic wheeze occurring during expiration and present most of the time. It was made worse by crying and was almost entirely absent during quiet sleep, although could be occasionally heard even then. Aid was entering both lungs freely and there was no interference with respiratory movements on either side. Percussion note was normal over both sides.

The respiratory sound described was taken to be a typical illustration of the "asthmatoid wheeze" and taken with the history of choking and the slight cough still persisting it was considered sufficient indication for bronchoscopy. Two pieces of popcorn were found at the bifurcation and were removed. Patient's convalescence was prolonged by a violent bronchitis resulting from the presence of the irritating substance in the lung, but was complete in about two weeks. This was considered to be an example of the "arachidic bronchitis" previously mentioned. (Fig. III.)

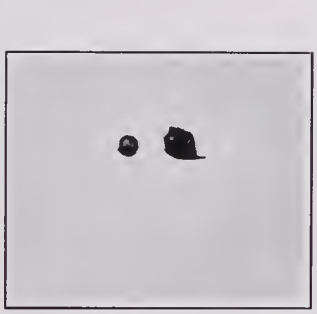


Figure III. Two fragments of popcorn removed from the trachea, Case 2.

Case 3. S. A., referred by Dr. J. H. Daniel of Sterling. This child, four years of age, was known to have aspirated a bean four days previously. Since that time cough had been almost incessant, dyspnea had been severe at times, with cyanosis, and the little patient was restless and evidently in great distress.

Physical examination by Dr. R. P. Forbes revealed the fact that air was entering both lungs freely, but with a blowing sound, rales were present on both sides, lips were blue, respirations rapid and difficult and patient

evidently in great distress. Temperature was 101.6. X-ray was taken by Dr. Wasson, who submitted the following report: "Considerable glandular infiltration at each hilus with definite peribronchial thickening extending out into each lung, with parenchyma quite clear. No evidence of pneumonic process. No foreign body to be seen. The chest picture would suggest an infection of the hilus and bronchial trunks, either secondary to a foreign body or primary in nature." It was evident that this patient was suffering from partial respiratory obstruction from a foreign body lodged in such position as to permit passage of air into both main bronchi and setting up sufficient irritation to cause a diffuse bronchitis, the effects of which were demonstrable by means of the x-ray, although the foreign body itself was not visible by such means.

Bronchoscopy verified this diagnosis and the bean was removed with difficulty from the opening of the right main bronchus, where it had lodged in such a position as to obstruct both airways partially, subsequently swelling and macerating so that the mechanical problem of dislodgment without fragmentation was a difficult one. The patient's recovery was uneventful, the bronchitis rapidly subsiding after the removal of the irritant. (Fig. IV.)

This patient had no asthmatoid wheeze in spite of the location of the intruder, probably because of its rounded character and smoothness, but the stethoscope revealed its presence unmistakably along with the existence of the resultant bronchitis. The history and symptamology alone were sufficient for a diagnosis in this case, although a careful physical examination and an x-ray will frequently shed additional light and can never be considered superfluous.

Case 4. M. E., referred by Dr. J. C. Savage. This patient, a woman of 30, illustrates typically a case of foreign body of long sojourn in the lung. Her history revealed the fact that at the age of 10 she had aspirated a gold beauty pin, but had suffered no inconvenience from it and had supposed that the pin had been swallowed and safely passed. No more consideration was given to the occurrence by patient or family. Since that time, however, she has always had more or less cough and has never been entirely well, although she has had four children and has been able to work part of the time. About four and one-half years ago she began spitting blood and her cough became worse, with an increase in the amount of expectoration. She consulted numerous physicians and it was strongly suspected that she had tuberculosis, although no bacilli were ever found in the sputum. Her cough got gradually worse until she would frequently cough for thirty minutes without remission, sometimes bringing up foul sputum and sometimes blood. She had never coughed up large quantities of either sputum or blood such as might have come from a bronchiectatic cavity or from an abscess. She was so miserable with these symptoms and her general rundown condition that she stated she would rather die than continue as she was.

Physical examination by Drs. Savage and Cunningham showed, in brief, a patient five feet tall, weight 92 pounds. Respiratory excursions equal on both sides, some bronchovesicular breathing on left side anteriorly above the heart and posteriorly over the whole of the left back. On the right, posteriorly, there was dullness at the spine of the scapula, with diminished breath sounds, breath sounds also diminished over the right base. There were no rales. Slight clubbing of the ends of fingers. An x-ray of the chest, taken by Dr. Frank Stevenson, demonstrated the presence of the foreign body, until that time unsuspected, after which it was not difficult to elicit the history outlined above. The pin appeared to be located in the right main bronchus low down. It was open and point up. No othre pathology was revealed by x-ray. (Figs. V and VI.)

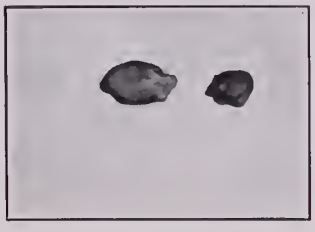


Figure IV. Bean removed from opening of right bronchus, Case 3.



Figure V. Radiograph, taken laterally, showing open beauty pin in right lung, Case 4.

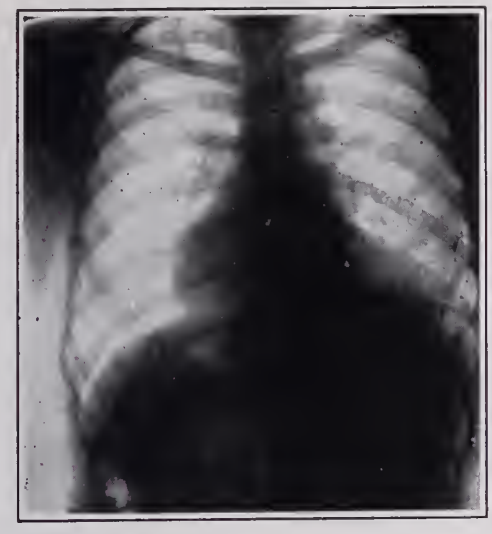


Figure VI. Radiograph, antero-posterior, showing pin behind heart shadow on right side, Case 4.

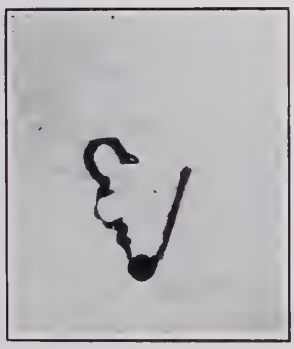


Figure VIII. Beauty pin, after its removal from Case 4. Note marked erosion after sojourn of twenty years. The small bead on the pin did not show in the x-ray. Pin was made of gold wire.

Bronchoscopy was done and the pin was found to be in a small abscess cavity filled with pus and granulations, below the branching of the middle lobe bronchus. A stricture of the main stem bronchus immediately above the cavity was dilated and the abscess drained. The pin was subsequently removed with the aid of the fluorscope in the hands of Dr. Stevenson. The operation was done under local anesthesia, the mm. bronchoscope being used. The patient has recovered completely from all symptoms, has gained 15 pounds in weight and is to all appearances entirely well. (Fig. VII.)

This case illustrates practically every point mentioned in dealing with the subject of foreign bodies of long sojourn in the lung and emphasizes the slight attention paid to these accidents in some cases because of the period of quiesence often occurring after the immediate symptoms subside. Subsequent developments are therefore not related to the original occurrence, resulting in an entire absence of history pointing to the real nature of the trouble. Hence no case of obscure pulmonary disease should be dismissed without the thought of the possibility of foreign body and the use of the x-ray for its aid in diagnosis. Few foreign bodies which would not show in the x-ray would remain in the lung for prolonged periods without causing acute and perhaps fatal trouble. In this case a sojourn of twenty years would have been impossible had the foreign body not been made of gold, and even then the erosion was very marked.

In conclusion, I wish only to add that in most cases a careful history, close observation of the physical findings, frequent use of the x-ray and resort to bronchoscopy when in doubt will result in the diagnosis, localization and removal of almost one hundred per cent of foreign bodies in the lung.

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DR. J. D. BEWLEY, of Artesia, New Mexico, and a recently elected member of the Eddy County Medical Society, was a visitor in Roswell on April 22nd, and met with the Chaves County Medical Society.

SOME THINGS TO BE CONSIDERED IN DETERMINING WHAT TEETH SHOULD BE EXTRACTED

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Chicago, Illinois.

While I have always recognized the evil influence which infected teeth, mouth and jaws exert on the body, I have not been so radical in my views as some of my colleagues, but have been more so than some others. Consequently, my position has not satisfied either of the extremists.

It is doubtful if anyone will soon be able to lay down a rule which will satisfactorily answer the question, "What physical indispositions demand removal of teeth for their cure, also what conditions of the teeth are a danger to man's physical well being?" No hard and fast rule can be formulated to fit all cases, since conditions differ in individual patients. That which is a menace to one is not a menace to another; likewise, that which is not harmful to an individual at one time may be harmful to him at another. It is largely a matter of the resistance of the tissue cells to bacterial invasion, or to increased virulence in the invading organism, or to something independent of either.

There are three distinct kinds of typical alveolar infection; the acute, the chronic with a sinus discharging through the gums or elsewhere, and the chronic without the sinus, usually called a blind abscess. In dealing with the latter, I have purposely omitted the word abscess, since it is not strictly speaking an abscess, but an alveolar apical infection.

The definition of an abscess, by the best authorities is a localized collection of pus in a cavity in the body. Hatton's and my studies of this subject have demonstrated that blind apical infections are generally not purulent infections, and, therefore, are not abscesses. Since infections of this class do not contain pus, the dentist or physician who discovers from radiographic findings one or more apical infections of this type, misinforms his patients when he tells them that as a result of such an infection "they have pus circulating in their veins." Some nervous women who have been informed that they have pus circulating in their veins, have been made almost hysterical, and as a result have earnestly requested the removal of all their teeth, regardless of the nature and extent of the supposed infection.

I have also deleted the term granuloma, as generally used, since the granulation tissue about the apex of an infected root is not a tumor in any sense. This diversion from the subject under consideration is only justifiable if it has a tendency to prevent incorrect and harmful statements.

Those who have had a wide clinical experience, and who have carefully studied apical infections in their causative relation to secondary disease can not ignore the fact that they cause such disease, and that the metastatic involvement is often far more serious than the primary focus. An insignificant furuncle in the skin, due to the staphylococcus, may, under favorable conditions such as lowered bodily resistance or increased virulence of the bacteria, cause an osteomyelitis, or a serious heart lesion. If this be true, then under similar conditions chronic apical infections may cause secondary disease in other parts of the body. On the other hand, a focus of infection in a remote part doubtless often does cause apical alveolar infection as a secondary process. Pulps of teeth having no cavities of decay, or those well filled, not infrequently become infected and die, with apical infection following. We can attribute this infection to no other source than to some infection outside of the jaws from which germs

(*Read before the Maricopa County Medical Society, at Phoenix, Ariz., January, 1923.)

are brought to the teeth by means of the blood and lypmph streams.

In attempting to answer the question "What teeth should be extracted?" we will confine our discussion to two classes of diseased teeth, the periapically infected teeth, and those involved in pyorrhea alveolaris.

We may first consider an extreme case of periapical infection. A patient has lost one eye; the other is involved in a serious iritis, or other disease of metastatic origin, which threatens the loss of sight. Careful examination of all parts of the body by competent specialists fails to discover any focus other than a slight apical infection about one tooth. In such a case, I should unhesitatingly recommend the removal of that tooth, no matter how valuable it may be either for mastication or for the patient's appearance, since the value of one tooth or many is not to be compared with the value of the sight of the remaining eye. If neither eye has lost its sight, and under similar conditions disease threatened the loss of the sight of one, I should recommend removal of the tooth in this case also.

Let us consider still another condition. A patient is in perfect health so far as can be determined. The teeth are radiographed and it is found that two or more have dead pulps with an infected zone extending crownwise nearly half the length of their roots. Here is a puzzling problem. Shall the teeth be treated or extracted? They are valuable; the patient's health is good; radiographs seem to indicate complete filling in of the rarified zones with bone following treatment of some such teeth, but it is extremely doubtful if the cementum is ever fully reproduced. Hatton and others have demonstrated that in some cases nature is seemingly successful in her efforts to cap over denuded dead cementum. A somewhat analogous condition is found in the trunks of trees where dead parts are completely covered over by wood of denser fibre, and the tree remains healthy and vigorous. But is the repair absolute or is the zone of reformed tissue about these teeth a weak spot, one liable to reinfection? I doubt whether it is as immune to infection when there has been such extensive injury as in the case just cited, as it was prior to the death of the cementum and its immediate covering. If we could be certain that the patient would never be subjected to a condition which would lower his vitality, then we should attempt to cure such teeth, and if a cure followed then we might let them remain as long as they are helpful in mastication. But we can not be certain that the patient's resistance will always remain high. Everyone knows of the experiment on fowls, which under ordinary conditions are not susceptible to the anthrax bacillus, but when they are subjected to unfavorable surroundings, such as improper feeding and being cooped in such a way that they stand in cold water, their resistance is lowered and they become susceptible to these bacteria. In all cases where so much of the cementum and peridental membrane have been destroyed, I believe we should recommend extraction.

On the other hand, suppose the tooth had only a small part of the peridental membrane and cementum destroyed, and the patient is in good physical condition; then I believe treatment is indicated provided the root canals are of such a nature that they may be properly filled. Nature is sometimes helped by resecting all of the dead part of the root when there has been considerable denudation of its apex. While the condition at the end of a resected root is not an ideal one, the root itself is in a better condition to be capped over by nature than when a considerable part of its dead apex is left intact. Resection is not indicated for the molars; therefore its use is restricted. Resection for the cure of apical infection is not always successful, but I have been agreeably surprised to find that in very carefully selected cases a large per cent of teeth thus treated often remain seemingly cured for many years; therefore I believe it good practice in selected cases.

The root canal should first be disinfected and filled and then resected. Resection affords perfect drainage, and as completely cures the immediate condition as does extracting. Hatton has found in the few cases which he has observed that resected roots had been covered over by a dense fibrous tissue, and were apparently protected from reinfection. Hatton's findings have been verified by H. Euler of Gottingen, Germany.

Those familiar with radiograms of the teeth and jaws have seen hypercementosis about the apex of pulpless roots. This is probably due either to an irritant induced by an abnormal occlusal or other mechanical insult or to the irritating influence of a low grade infection, usually the latter. Sclerosed bone seen following cured or partially cured infection in the jaws, is probably the result of overcalcification in the restorative process.

All pulpless teeth should be radiographed twice yearly to observe their condition.

It has been my privilege to have had many ailing patients referred to me by physicians to determine their oral condition. I have kept records of all such patients and later have been able to check up on many of them. In some of these cases there have been miraculous cures following the elimination of jaw infections. While in other cases there have not been cures but there has been marked improvement. In still others there has been temporary improvement only, and in many there has been no benefit whatever, particualrly arthritic patients.

The fact that we have not found removal of jaw infection a panacea for the cure of all ills attributed to such infection does not lessen the significance of the established fact that the removal of these foci is often followed either by complete cure or by mitigation of symptoms which may be attributed to such an infection. The jaw infection may be only one of several foci of infection in the body, and in such a case, the load may be lightened by the elimination of the oral disease, and the patient's condition improved, but a complete cure is not to be expected until the other infections have been eliminated.

It is much easier to locate foci of infection in the jaws than in some other part of the body, owing to the ease of discovering them through the aid of the radiogram or by ocular examination in pyorrhea infection.

Eminent physicians who have recently been seeking other chronic foci of infections in the body to which certain secondary manifestations may be attributed, find some which are proving to be prolific causes of secondary infections. I would call your attention to an article by Irons in the issue of June 30, 1923, of the Journal of the American Medical Association entitled "Some Less Frequently Considered Portals of Infection in Arthritis and Iritis." Among these portals are the intestinal tract, the mucous membrane of the upper respiratory tract, and the tissue about the hila of the lungs. Another article by Irons and Brown, published in the same journal of November 24th, 1923, entitled "The Etiology of Iritis," shows that dental infection is not the most common cause of iritis as has been supposed, syphilis being a more frequent cause.

PYORRHEA ALVEOLARIS

With the exception of the exacerbations of acute attacks of pyorrhea alveolaris, that is, the lateral abscesses of Black, there is less danger of this disease disseminating infection through the blood and lymph streams than there is from closed processes such as chronic apical alveolar infections. We may have secondary infections from the liberation of bacteria from pyorrhea pockets into the mouth causing tonsil disease, or the organisms may pass on to the stomach and intestines causing gastric or duodenal ulcers, or they may pass out through the intact walls of the intestines causing metastasis in some organ or part of the body.

Hunter attributes pernicious anemia to bacteria liberated from infec-

tion in the oral cavity. Everyone has seen marked improvement in the physical condition of patients following elimination of pyorrhea pockets about the teeth, where there has been no response to other treatment. Complete elimination of deep pyorrhea pockets is not often effected by any other treatment than by the removal of the teeth involved or by the surgical removal of a portion of the gums, so as to completely eradicate the pockets. If the infected process has gone so far as materially to loosen the teeth, then their removal is indicated. In some instances pockets may extend nearly or quite to the apex of a tooth on one side of a root and the tooth, through its attachment on the opposite side remains firm, and the tooth does not become loose, but such a tooth should be removed. Radiograms are helpful in determining the extent of the destruction of bone and the investing tissues in this disease, but the labial or buccal and lingual destruction is not generally shown. A thin explorer should be used to aid in determining the extent of the injury. As in periapical alveolar infections, the patient's physical condition must be considered in determining how radical the treatment shall be. If the idisease is progressing, in spite of treatment and even though the patient's physical condition is good, removal of the teeth should not be delayed, because there is danger that the alveolar process may become so depleted as to render the use of artificial dentures difficult.

Let us not forget in our enthusiasm to locate foci of infection, that the teeth and jaws are not the only parts of the body from which secondary disease may have its source. We may take specimens from infected root ends, culture them and inoculate animals with the bacteria and produce startling results in the inducement of disease, but likewise, if we collect bacteria from a chronically inflamed mucosa of the nasal fossa or the air sinuses adjoining, we may produce similar diseases. It is needless to enumerate the many other parts of the body from which specimens have been taken and cultures made and animals inoculated, generally causing diseases in remote parts

Another thing to be remembered is the fact that most of the partial restorations made to supply the teeth lost, not infrequently cause trauma either of the peridental membrane or the gums. In cultures taken from about such teeth will be found that same green forming streptococcus. We may remove a tooth showing a slight apical rarefaction, put in an artificial substitute, which causes injury to the gums or investing tissues, then opportunity is offered for the entrance of pathogenic bacteria into the circulation. In such a case the patient has not only lost a tooth which by treatment might have remained useful indefinitely and done the patient no harm, but the substitute has caused a condition which may be more serious than existed before the tooth was removed.

HELIOTHERAPY IN SURGICAL DISEASES

DR. OSCAR S. BROWN, Santa Fe Surgeon, Winslow, Arizona.

Heliotherapy, the term applied to the treatment of disease by means of the sun's rays, has during the last twenty years been brought prominently before the medical profession as a valuable means of treatment in both medical and surgical diseases.

Through the efforts of Rollier and Bernard, of Switzerland, and various German and French physicians, it has been established upon a scientific basis and is much used in treating various diseases, in those countries, although as yet not generally used in the United States.

Even the Romans and others, in early times, had solaria attached to their houses. They also have spoken

of the beneficial effects of the sun's rays.

All of us experience exhilaration of spirits in the sunshine, and also feel much better during bright weather than when it is dark and gloomy. The old proverb, "Where sunlight enters not, there the physician goes," is as true today as when it was spoken years ago.

Sunlight, as we know it, is composed of rays having the properties of heat, light and chemical action. The actinic rays are those which for the most part produce chemical action. Beyond the visible spectrum are the so-called ultra-red rays on the one side and the ultra-violet rays on the other. It is to the ultra-violet rays that the beneficial effects of heliotherapy are due.

Dawes and Blunt, in 1877, first demonstrated that sunlight had a bactericidal effect, retarding the growth of some bacteria and entirely destroying others. Various experimenters in Europe and in this country have since corroborated their observations. It is now a well established fact that direct sunlight will destroy the tubercle bacillus in from three to five hours or less, typhoid bacillus in from one to two hours. Diphtheria, scarlet fever, small-pox, and all other contagious diseases have their germs either retarded or destroyed by varying lengths of exposure to sunlight.

To this germicidal action of the sun's rays is due much of its beneficial effects in surgical diseases.

Although we do not yet fully know just what effects direct sunshine has upon the human body, experience has shown, however, that when the body is exposed to sunlight for any considerable length of time, besides the local effect upon the diseased area, there is increased metabolism, increased elimination of toxins, improved nutrition as shown in increased weight, greater cutaneous activity, increase in the hemoglobin and in the number of red corpuscles. The nervous system is also stimulated. The local manifestation upon the body surface, outside the diseased area, is the marked pigmentation or bronzing. Upon the pigmentation depends largely the prognosis, for it has been found that those cases which pigment intensely are usually the ones which recover most rapidly. Fair persons pigment less than dark ones, therefore brunettes get the most benefit from sun baths.

Other things being equal, it is evident that the most favorable results from heliotherapy are obtained where the sun's rays are the most intense and there is least absorption from the atmosphere, and these conditions are usually found at quite considerable altitudes, as experiments have shown that twenty-five or thirty percent of the power of the sun's rays is absorbed by the atmospheric dust and moisture before they reach the level of the ocean, under ordinary conditions. However, experience has shown that most excellent results may be obtained at sea level in heliotherapy.

Most wonderful results have been achieved in surgical cases of tuberculosis by the Swiss, German and French physicians during the past twenty years. Cases of open tuberculosis of the hand, foot, shoulder, hip, spine, and secondary abscesses, are being successfully treated by sunshine alone with the most gratifying results, far better than by any other method ever used. A very striking feature of this treatment is the almost immediate relief of pain.

In tuberculosis of the abdominal cavity there is immediate improvement, in all conditions, by opening the abdomen and allowing the direct sunlight to shine into abdomen for a short time and then closing.

Heliotherapy exerts beneficial influence in sluggish burns which refuse to granulate and heal. Chronic leg ulcers are also greatly benefitted, in fact any wound which has become unhealthy and is slow to heal will respond to well applied treatment by sunshine.

Each individual case must be studied and the heliotherapy applied in an intelligent way just as each case

of typhoid is a case to itself and needs to be treated as such.

One needs to attend to the general hygienic conditions by good food, plenty of air, rest where needed, and everything else which will aid in the upbuilding of the patient.

I have selected a few cases from my notes covering a period of twenty-five years to show the beneficial influence of heliotherapy, believing they will interest you, and with the hopes that other physicians will be interested in giving more thought to this valuable agent in treating surgical diseases.

CASE NO. 1.

Miss A. C., aged twenty-six years, family history negative. General condition below normal. Diagnosis, cystic tumors of each ovary.

Operated on her in May, 1894, in southeast room in farm house, in Southern California. The room had been thoroughly sterilized and had two large windows on southeast. Made median incision nine inches long, found the intestines covered by tuberculous deposits, removed both ovaries and the cysts attached and the tubes close to the uterus. In working I pushed the table into the sunshine in order to see conditions better; the abdominal walls were well retracted by ordinary retractors held by myself and assistant. The sun shone into abdomen for half hour or more while we were working. The abdomen was then closed in the usual way and ordinary external dressing applied.

The third day patient developed pneumonia of right lung with a temperature of 105 F. Presumably this pneumonia was from the ether. She expectorated rusty colored sputum, temperature remained high for five days, gradually declining as the lung cleared up and patient made an uninterrupted recovery. External wound entirely healed on the twenty-first day. She gained in flesh and was heavier than ever before. She remained well for over two years, then contracted tuberculosis of lungs probably from some clothing which were given her by parents of her chum who had died of tuberculosis. These clothing were of fine woolen materials and had not been washed or fumigated for fear of spoiling them. They were the clothing the chum had worn during the last months of her illness.

This case is specially interesting as showing the beneficial effects of the sun's rays shining directly into the open abdomen and the complete recovery of the patient as shown by general condition and weight.

CASE NO. 2.

Miss H. M., aged twenty-two years, both parents healthy Scotch people; none of the immediate family or any of the uncles or aunts showed any diseased conditions other than one aunt had died of cancer.

This young woman developed tuberculosis of the hip joint at seventeen and was treated by some of the best medical men of San Francisco and Los Angeles until she was twenty-two years old.

In 1913, I visited the family as we were old friends in the East. This young woman was then very much emaciated, anemic, was confined to bed and had a large open sinus leading directly to the bone.

I advised them to bring her to their home, which was near Santa Barbara, construct a sun porch, enclosing it with glass, and with glass for roof, so constructed that persons could not see into it from outside. This they did, and began with ten minute exposures of lower limbs each day, gradually lengthening exposures until she spent several hours a day in the direct sunshine, until the body was deeply pigmented all over. Nothing was done for the discharging sinus other than to keep it clean, which was done by the use of boiled water and syringe having canula to reach into the wound. The open wound was given direct sunshine whenever that portion of the body was exposed.

During the months she was in bed in the sunshine, she lived on the porch entirely, she gained in flesh, slept well, and finally the open wound healed. By the use of an extension splint of iron, which was removed every day when taking her sun bath, she has a fair hip and was plump and well in May, 1922, when I visited the family.

Their local physician applied the extension splint and gave advice about its use, other than I insisted on the wound being open during all the time of the sun treatment.

CASE NO. 3.

Frank D., aged fourteen years, robust, healthy, farmer's son. Was badly burned in trying to save younger children when the house burned, three of the children losing their lives in the fire.

This lad was burned over more than half of his body, the scalp and face were blistered, hair entirely burned off, area over kidneys and stomach burned as were the arms and legs. Most of the burns were of the first degree, small areas were of the second and third.

The family being a hundred miles from a doctor, and the fire occurring about midnight, it was twenty-four hours before I saw them.

The neighbors had applied baking soda and olive oil freely to the burned parts, and had made bandages from muslin torn into strips.

I cleaned the burned areas with boracic acid, then applied Carron oil, freshly made,

and covered it with oiled silk, and bandaged; this gave him considerable relief from pain, tho I also gave morphine hypodermically. Following this dressing, I had them cleanse the burns with boracic acid saturated solution, carbolic acid in varying strengths, bichloride solution, and normal salt solution, having each one slightly above body temperature. As a dressing, I used picric acid, alum compound, zinc ointment, etc.; later I used dusting powders of aristol, iodoform and boric acid, each combined with pulverized starch. However, nothing I was doing was of any benefit, as he was gradually getting worse, lost flesh until he had not strength to turn himself in bed. It seemed as if he would die at any time.

I decided to try the sunshine treatment in his case. I had his father construct a home-made bath tub and line it with heavy oil cloth. I prepared a solution of hot bichloride, 1 to 2000; into this we placed the patient, soaking and rubbing the burns until all the scabs and infected material was removed, kept the water slightly above body heat and he remained in the bath for two hours. We lifted him out of bath onto oiled silk on clean cot bed, over body placed a cradle and covered it by clean sheet and blankets necessary to keep him warm until he was dry, then set the cot out doors partially in shade. After about an hour we removed the covering and placed light netting over cradle and allowed the sun to shine on him for ten minutes, then placed him in the shade of a large tree in yard. Each day he had warm bichloride bath, of an hour or more, then the sunshine treatment, each day giving a longer exposure until he spent most of the day in the sun, only during the very hottest part being in the shade of the tree. The bichloride was gradually decreased to 1 to 5000, towards the end of the treatment.

Every evening he was carried into the house and his cradle had clean sheet thrown over it, over which were placed sufficient blankets to keep him warm, and room kept at from 68 to 72 degrees.

His baths were given at 10 a. m. and clean oil silk placed on his cot. He had a carefully regulated diet at short intervals, no other treatment for the burns, was given digestive remedies and tonics later.

He improved from the first treatment and made an uninterrupted recovery, and strange to say, at this date, is not badly disfigured, nor has he had bad contractures, although for two years after it seemed as if he would be permanently crippled in left arm and right leg.

The pigmentation over entire body was the most marked I have ever seen in any one. The hair has grown heavy and is healthy. He is a fine specimen of young manhood, has just passed his twenty-first birthday. He recently called on me and stripped down for me to see how few scars he had left on his body, it being seven years since he was burned.

CASE NO. 4.

Roy T., aged seventeen years, enlisted in Navy in 1918. Was healthy and well grown, never had been sick. Family history negative.

He had influenza in February, 1919, complicated by pneumonia and pleurisy with effusion. Also had phlebitis (septic type) of both femoral veins. After months in the hospital he was able to resume his place in the service. Shortly after this he was injured on right ankle by a hawser, the skin and flesh being torn off to the bone.

He again entered the hospital and although he had every type of the most modern treatment, including violet rays, radium, x-ray, etc., this sore, which had become a chronic leg ulcer, would not heel. He was in various hospitals for over two years.

His father went east for him and by signing a release he was allowed to bring his son home with him to Arizona.

I saw him the day after his arrival in Arizona, June, 1921. He was very anemic, no appetite, much thinner than usual, the ulcer was bathed in thick, yellowish-white discharge, was very deep and red and swollen around the ulcer. His general condition was bad, tongue coated and bowels sluggish.

I advised rest in bed, three regular meals each day of easily digested food, a warm bath each evening. Also sun baths beginning by ten minute exposures of lower extremities twice daily, exposing more of body and for longer intervals each treatment, until entire body was exposed for several hours daily.

The ulcer was washed with warm bichloride solution, 1 to 2000, every night and morning; it was covered with carbolated vaseline on gauze, when not exposed to the sun's rays.

His appetite increased, circulation improved, he slept more, bowels became normal, he gained in flesh, the ulcer showed improvement very soon after treatment was begun, and was entirely healed in six weeks. I required him to remain in bed the entire time. Before allowing him to be up and around I applied the knit elastic bandage to both legs up to knees. At this date, over two years after his treatment, he is entirely well and does not wear any bandage on either leg. The ulcer shows an ugly scar, otherwise looks healthy.

I might add that he had no medicine of any kind, other than at the beginning he had three doses of calomel during the first week.

THE ASSOCIATION OF PSYCHONEUROSES AND ENDOCRINE DISFUNCTION

DR. S. D. SWOPE, El Paso, Texas

In the consideration of this subject, I am reminded of a talk I once heard delivered by the illustrious Binney, the subject of which was "What Fools We Are," that we have not considered this subject more carefully in the past.

The biologist has noted its phases in the proliferation of species. The physiologist has studied the influences in metabolic physical and chemical activity. The pathologist has studied the physical association, but full too often the practitioner has turned a deaf ear, a non-seeing eye, and an unfeeling touch to the phenomena resulting from these two ultra important physical associations.

All of the life of an animal seems to be embodied in two specific processes: The poet "Schiller" has denominated these "the instincts of hunger and the instincts of love." Jelliffe has described them as "the mechanisms of metabolism and the mechanisms of social behavior." Into these two conditions are interwoven the two great functions of physical activity and psychic influence.

It would seem that we have always known that mental conditions and mental activities have had considerable influence upon the physical activity of animal life, but few of us have taken the trouble to apply these psychic conditions to individual or collective glandular activity.

Just now, the study of the two subjects of psychoneurology and endocrinology are actively engaging some of our ablest thinkers. While psychic conditions undoubtedly have marked influence over glandular activity it is equally certain that glandular activity has a marked influence over psychic and neurogenous conditions. This being the case, it is not always easy to determine the primary activating influence when we have conditions developing where these two physiological functions are involved.

We are led to believe by clinical and experimental research, and this is borne out by observation, that the endocrine glands produce at least two physiological products, one acting directly on cell activity of the various producing organs, and the other serving as a hormone. There is hardly any question of there being at least a two phase, and possibly a three phase, activity of the secretions of the gonads. Certainly the production of the fundamental principles of life are accompanied by phenomena of mental and physical character that could only be produced by an activating influence of direct origin and hormonic origin. There are positive indications that both influences are at work.

The spleen, at one time, was considered the source of certain objectionable characteristics. I do not know whether our conclusions along these lines were first developed from certain suggestions of Shakesperian origin, or whether they emanated from some previous philosophy like the heart origin of human affection. At any rate, we have shifted our conclusions from the spleen to a smaller gland held in the sella turcica, which seems not only to have something to do with anger, but apparently also influences both the physical growth and physiological activity of neighbor glandular structures. The pituitary gland also seems to have something to do with the depth and degree of human affections, which belongs exclusively to psychic phenomena. Its gonadian influence seems to be unquestionable.

We come now, to the thyroid, which by its prominence, visibility and marked influences, came early to the attention of pathologist, physiologist, surgeon and endocrinologist. I recently saw several thousand of

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these glands in a museum. They were being studied by a great pathologist, who had devoted years to their scientific investigation. He assured me, that while he knew much of their cellular formation, physical activity and physiological effects, that the veil covering the real knowledge of the thyroid had not been rent asunder. Here again, the sympathetic glandular system comes in for its share of consideration, and at least we can assert that in all thyroid disturbances there are psychoneurotic syndromes as in cretinism and many other conditions.

What has been said of the gonads, the pituitary and the thyroid, can also be said of the adrenals and the pancreas. Wherever we have a disfunction of any of these glands, we apparently invariably have accompanying psychoses, such as weakened mentality and psychic changes varying from individual peculiarities to advanced maniacal psychasthenias.

The last war produced a large number of psychoneuroses incident to war experiences. These psychoneuroses varied with the psychic stability of the individual.

Mental development depends upon three factors,—heredity, environment and education. One of the principal factors in the production of war psychoneuroses is the combative, mental conflict, currents produced by a revolution of educational development. It is no easier to turn the plow share into a sword than it is to turn a plow boy into a sword bearer. The mental processes of war are directly opposed to the mental processes of peace.

The opposing psychic influences of the complete change of educational direction are accountable for much of the difficulties encountered in our rehabilitation educational efforts.

The two periods in the life cycle of the human being, when psychoneurotic changes are most prone to occur, are the adolescent period and menopause period. While the gonads are making their changes in development and when going into functional rest, there certainly seems to be a tendency to pluriglandular involvement, with decided influence on the psychoneurotic conditions. The prevalence of mental and nervous disturbances at this time are not purely psychic phenomena, but have some physiologic origin, an origin as yet infinite so far as finite research has been able to determine. We have Brown-Sequard's elixir, insulin and thyroxine, but they do not have the complete physical and physiological functional characters of the glands from which they are produced, neither does the dessicated gland product or the extracted principles give us the full physiological results of the normally functioning gland, though these products do, under some circumstances, show marked influence on psychoneuroses accompanying glandular disfunction.

Again, we have in the arteriosclerosis of senility a marked example of the psychoneurotic conditions of deterioration with glandular degeneration, for like John Anderson, my Jo-John and his good wife, they not only climb the hill of development together, but hand in hand they wander down the slope of life and sleep together at the foot.

Zondek and Reiter in Klinische Wochenschrift (Berlin), July, 1923, regard the vegetative nervous system as the system regulating the electrolytic factors, and thus maintaining the hormone balance. They assert that disease may be due to the gland producing the hormone, or the defective functioning of the regulating system alone.

Out of the foregoing conclusions, I would like to lay emphasis on the following deductions:

Disease is organic disfunction; organic disfunction can hardly take place without multiple influence on the endocrine glands.

It is important that we take into consideration the degree of psychic and neurotic association in practically all disease syndromes. When psychoses and neuroses present the most prominent symptoms, we would do

well to thoroughly investigate the endocrine glandular activity.

We are sadly in need of some physical means of measuring direct and hormonic endocrine requirement, and endocrine functional activity. Blood chemistry tells us the carbohydrate assimilating power of the metabolism, but when, where and how, are as yet to be answered.

We have recently had reported some new instruments for measuring intracranial pressure. This is a good step in advance, toward a more accurate knowledge of psychic and neurotic function.

Few of our psychoses and almost none of our neuroses leave trace of physical change that can be identified at autopsy.

It would seem that our knowledge of the source or cause of these conditions must be derived from such research as may be prosecuted during the life of the patient.

We know by deduction that there are afferent and efferent influences connecting the glandular system including the brain, and there are individual psychic metabolic influences entering into the functioning of all the separate glands. A letter of inquiry to practically all the post-graduate schools in the United States brought the reply that they gave no course on endocrinology. Sajous in the University of Pennsylvania gives the most complete course with his lectures on internal medicine.

MEDICAL HISTORY*
(Introduction)

DR. HUGH W. CROUSE, El Paso, Texas.

Your new president, Dr. Waite, on being inducted into office, among other policies decided upon an innovation as to the nature of the weekly meetings of our society. It has been a hobby with him for years to deal quite intimately with historical characters of the past who have created some new method in our chosen profession, and has claimed that from such one could derive an immense amount of profit.

He expressed a wish to me that I take charge of the salutatory evening evening upon this innovation, and, upon this innovation, and, after due consideration, deeming such an honor, I stated that I would be glad to do so. I selected as a companion to your evening's entertainment, my good friend and colleague, Doctor E. A. Duncan. We considered various different subjects of interest to the El Paso medical men. Their constant contact with chest patholgy induced us to select two outstanding figures in the medical past. Dr. Duncan will present to you a brief biography of Leopold Auenbrugger, who discovered percussion, publishing his observations in 1761. I shall present for your edification, and, I trust, interest, Rene Theophile Hyacinthe Laennec, the innovator of the master method of chest pathology diagnosis, auscultation, which he published in 1818.

The development of medical progress has been that of decided political periods. Egyptian culture stressed a blend of medical and early religious beliefs. Astrological and prophetic interpretations from the observation of animal and bird abdominal viscera were in the main the province of the early medical man. Babylonian and Chaldean sanitary developments reached, through their physicians, a fair degree of advancement. Esculapius, with his philosophical amalgamation of Egyptian chemical and drug lore, and Babylonian Chaldean sanitary rules, created Greek medicine. Hippocrates, from a basis of careful clinical annotations, and Aristotle, as a medical philosopher, stod as a peak point twain of medical progress throughout Greek, Roman, medieval and renaissance periods. The progress of people, their cultural peaks, in all phases of advancement had an accompanying medical devel-

(*Symposium before the El Paso County Medical Society, Jan. 21, 1924)

opment, their decline a medical retrogression. Superstition and educational decline followed the conquering of the Roman nation. Arabic and Jewish physicians and Roman Catholic monks carried the dimly burning torch of medical facts and theories throughout the ages between the time of Galen and the Salernian school.

Now and then, through the centuries covering this period, some outstanding character appeared whose individualism discovered some few grains of medical facts that modern medicine has gleaned and then cemented into the medical knoweldge of the present. The Arabic prejudices against contact with bodies and their religious instruction interdicting dissection and even surgical intervention precluded progress. Custom stamped its demand on those not of Mohammedan faith, within the area of Arab control, precluding theri investigation through dissection or postmortem work, the normal or abnormal anatomical conditions.

Prayers, amulets, folklore and wise woman remedies were the agents used in human ills. Epidemics ran riot during the medieval period. At no time in the past nor in modern medicine or the present has there existed such a degree of epidemics as occurred during that dark age. The aseptic teachings of Hugh of Lucca and his pupils, Theodoricus and Henri de Mandeville in the twelfth century were forgotten or browbeaten into an obscure background by canonical teachers like Gui de Chauliac.

The resurrection of obliterated facts—as Celsus' ligation of blood vessels by Ambrose Pare in the fifteenth century, Lister's utilization of Pasteur's bacteriological discoveries in the nineteenth centry,—brought again to light the aseptic teaching of Hugh of Lucca.

Hippocrates' immediate auscultation and succussion led Leopold Auenbrugger, in 1761, to compile and intimately describe his method of immediate percussion. Unrecognized and bombastically driven into obscurity by his teacher, van Swieten, and the latter's successor, de Haen, this wonderful diagnostic method lay buried in obscurity until Napoleon's physician, Corvissart, rescued and popularized the method in 1808, one year before Auenbrugger's death. A pupil of Corvissart, Rene Theophile Hyacinthe Laennec, recalling acoustic facts, utilized and developed from such mediate auscultation by constructing out of three quires of paper a tube by means of which he was enabled to elucidate chest pathology. Wide investigation of various materials induced him to select a soft wooden material, which he constructed into a tube twelve inches long, hollowed into a one and one-hal-in. concave cone at its base, and bored throughout, two lines in width. This instrument he named the stethoscope. Through the work of Auenbrugger and Laennec modern chest diagnosis was developed.

Hurriedly, the past in medical development has been scanned for you. The original writings of these masters of the past should be read by you. Their clinical observations by their personally developed methods stand out today as literary masterpieces. The present text-book teachings are only too frequently but poorly garbled and incomplete extracts from the writings of Auenbrugger and Laennec.

Gentlemen,—Doctor Duncan.

LEOPOLD AUENBRUGGER*

E. A. DUNCAN, M. D., El Paso, Texas

The latter half of the eighteenth century was the period of Auenbrugger's activities. He had studied medicine under Van Swieten, a Hollander, as were most of the medical lights of that day, and the founder of the Vienna school. Auenbrugger's genial disposition and love of music

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made him more or less of a court favorite. He was cordially accepted in Vienna society and later given a title. His medical ability was no less recognized. After the completion of his medical training he was appointed, at the age of twenty-nine, physician to the largest and best hospital in Vienna. Ten years later he published his brilliant treatise on percussion of the chest, not, as he stated, out of a desire to be writing but as a result of seven years of study and observation. He wrote little else except an opera.

Auenbrugger's "Percussion of the Chest" met the fate common to medical discoveries of the time; it was almost unrecognized by his contemporaries. This was expected by the author for he states in the preface that those who improve the arts are beset by envy, malice, hatred, detraction and calumny. Certainly this is not a situation which exists today. Van Swieten ignored his work and his successor de Haen did also. The writings of these two men are now a matter of historical interest only while Auenbrugger's work is still a classic. With a few exceptions the "Percussion" was unappreciated until Napoleon's physician Corvissart translated it, with due praise, forty-seven years after its appearance. At last percussion became an accepted scientific method of diagnosis. Auenbrugger lived just long enough to see his discovery recognized. He died in 1809, one year after the Corvissart translation.

The work is nothing if not modest; it comprised only 95 pages in the original Latin. Auenbrugger believed that he had proved what he had written but confessed that many defects in his method remained to be remedied. But unlike many writers, past and present, he stated that he had omitted many things doubtful and insufficiently digested. Perhaps this is why the work is still alive.

All of Auenbrugger's observations were made with direct percussion. He begins with the normal chest, notes the lower boundaries of the lungs, the character of the percussion note over the spine, sternum and heart and the effect of increased thickness of the intervening tissues. He then describes his technic. Strange to say he wore a glove or let the chest be covered with a shirt. Just as students are or should be taught today he insists that familiarity with the normal is a prerequisite to the study of the pathological.

Two types of sound are recognized, the normal and morbid. This was before Laennec's invention of the stethoscope and auscultation of the chest with the unaided ear was rarely practised. The morbid sound, that is dulness, was urged as a prognostic as well as a diagnostic sign without much knowledge of the underlying pathology. It is interesting to note that mental affections, especially homesickness among drafted soldiers, may cause a change in the percussion note of the chest and finally death from calloused lungs (tuberculosis). Some patients with violent coughs, dyspnea and consumptions show no morbid note on percussion, but they are apt to have a copious watery urine. Were not these diabetics without extensive tuberculosis? The dyspneic patients were perhaps diabetic coma cases. The description of unoperated empyema with bronchial fistula would answer well today with only minor changes in terms.

Autopsy findings confirmed a series of studies,

1. Scirrhus of the lungs; (tuberculosis).

2. The conversion of scirrhus into an ichorous vomica; (pleural effusion in tuberculosis).

3. Purulent vomica; (this is evidenly empyema but not so-called until it fills the whole chest).

4. Empyema as just described.

5. Dropsy of the chest; (hydrothorax or effusion without evident tuberculosis).

6. Dropsy of the pericardium; (pericardial effusion).

7. Hemothorax and hemopericardium.

8. Aneurysm of the heart; (car-

diac dilatation in the acute infections).

This is a fair assembly of gross diseases within the chest with diagnosis made only by percussion and a study of symptoms. What a tremendous advance in medicine the final acceptance of Auenbrugger's observations have marked.

610 Martin Bldg.

RENE THEOPHILE HYACINTHE LAENNEC*

DR. HUGH W. CROUSE, El Paso, Texas

On February 17, 1781, in Quinner, Lower Brittany, was born a child destined to be an outstanding figure in medicine—Rene Theophile Hyacinthe Laennec.

Laennec's mother died of pulmonary tuberculosis when he was at the age of five. His father, a very brilliant advocate, but a very careless man as to his family responsibilities, neglected or paid very little attention to his five motherless children.

At first Laennec was in the home of an uncle, a cure, but shortly he was taken into the home of another uncle, Guillaume Francois Laennec, a practicing physician in Nantes. He was given a very careful classical education. Physically, Laennec was as a child frail, and remained so throughout his brief life.

Through the influence of his uncle, he was placed in one of the prominent military hospitals in Nantes, where despite the fact that he was as yet an undergraduate, he was given the advantages of a graduate in medicine. A persistent student, accurate, a keen observer even in his earliest youth, his medical environment gave him opportunities that his nature and tendencies took advantage of in the fullest.

At 19, he was sent by his uncle to Paris, where he became a pupil of Corvissart, personal physician of Napoleon. As a student in LeCharitie, a pupil of Corvissart, the chief of staff, wide clinical advantages promptly opened to him. Careful case histories and keen observation of clinical manifestations, painstaking post-mortems and notations of pathological findings, correlatively weighed, constructed his diagnosis. According to his cousin, Maeridic Laennec, fully 400 clinical cases within four years were collected by him. The clinical notes and pathological observations of these cases served as the basis of his future discovery. This, in the history of medicine, is practically the first bit of real diagnostic work, consisting of careful history taking, clinical observation and physicial findings, from the period of Hippocrates to the time of Laennec.

The commencement of diagnosis based upon clinical and pathological findings dates from that period. At the age of 23, he received his doctor's degree. Previous to his graduation, he had written several medical articles. These covered a wide medical field, one upn the capsule of the liver, several upon pathological observations of various kinds. The first year subsequent to graduation, he acted as the editor of the Journal of Medicine.

In the ruthless spirit of the French Commune, the beating down and casting aside of superstition and religious dogmatism, the substitution of chemical and cold scientific meetings for dilletante salons, were the concurrent results of this political upheaval. Men's minds demanded facts. Doubt was everywhere. Unsparing destruction of the obstructing old, and its substitution with the unfeeling new constantly occurred. Such was due to a blend of circumstances. The entrance of the great Napoleon into the world's political arena, with his uncanny recognition of merit in those he placed in situations of trust; his love of art, science and literature,

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his fostering of such, controlled by a domineering nature, inspired in every branch of science a precipitate of facts, not an opacity of theory.

In all branches of science, the ruthless demands of proof ruled. Such was the type of educational environment of Laennec. It but stimulated him to the most strenuous efforts to seek newer methods for the old, and a pitiless proof of the new.

Hippocrates' succussion and immediate methods of auscultation had been noted by Laennec, but, as he states in the preface to his primary report upon his great discovery,—auscultation,—the type of patient that one came in contact with in the hospital was as a rule a filthy sort of an individual. The placing of the ear to the chest of such was disgusting to the examiner. In private practice, particularly among women, Laennec states that immediate auscultation was an indelicate thing. A companion scholar, Bayle, had used immediate auscultation, the first time, so far as I have been able to discover from my personal study of medical history, from Hippocrates to that period.

Corvissart was a wonderful teacher. In 1808 he translated Leopold Auenbrugger's thesis upon percussion, and stated that it was one of the greatest advancements in the diagnosis of the pathology of the chest that had been brought forward. Laennec had intellectual companionships, and a wonderful inspiration from a broad-minded teacher, Corvissart, who sought among his pupils those who seemed to have genius, and contrary to the methods of van Swieten, the teacher of Auenbrugger, he praised and stimulated and gave full credit for any discovery on the part of a pupil.

In 1816, Laennec stated that he was called upon to make a diagnosis of cardiac trouble in a fleshy young woman. He recalled the acoustic fact that a piece of solid wood scratched upon at one end by a pin would convey sounds to the other end in a very distinct and audible manner. Picking up three quires of paper he rolled them into a tube, and, to his astonishment and delight, after placing one end against the chest of this young lady and the other to his ear, he was able to hear the varied sounds of the heart in a manner that he had never listened to before.

The custom previous to this discovery of Laennec was to lay hands on the chest, and by the vibrations and thrills conveyed through the wall of the chest, and at times by immediate auscultation, the pathology of a cardiac type, or of a pulmonary nature, was crudely interpreted.

Experimenting with various materials, he found that a gold-beater skin blown up outside a metal tube conveyed extraneous sounds, and that solid or denser woods, contrary to the usual expectations, were less advantageous than some soft material, like a piece of cane. He constructed, finally, out of one of the less dense woods a tube 12 inches long, bored through, forming a tube two lines in breadth, and hollowed out at the base to the depth of an inch and a half in a cone-like manner. For heart examinations, he inserted a cone-like piece into this concave area, the former also drilled through to form a two-line-wide tube. He divided the tube in the center so as to make it more convenient in carrying. This instrument he named the stethoscope.

Laennec's publications were wide and varied. His most remarkable clinical observation was his monograph or text upon auscultation. This text he divided into four sections, the first being devoted to the normal respiration. He stated that the points where one could more accurately hear the changes within the chest were the anterior-superior, the lateral and the posterior-inferior portions of the chest; that the hilum area of the lung was more definitely studied from the intra-scapular or spinal area posteriorly. He was very definite in stating that the position of the physician should be such as not to bend the head back too far, as such would produce through the circulation or obstruction of circulation in the examiner, a change in the

sounds being listened to. That it were preferable that the patient be seated, and that for the lateral or mid-axillary areas, patient be tipped to the opposite side, with the hand of the side being examined over the top of the head. There is nothing in modern texts that is more clear and definite. To describe the sound waves, he utilized some known acoustic fact, either in a musical instrument sound, or the movements of different materials; such citations accurately convey to the reader that which ne will hear in the normal or abnormal chest state.

His second section was devoted to the sounds of the voice. Particularly did he note the variations in dilated bronchial tubes, also cavitations. The voice sounds in the latter he denominated pectoriloquies. The sounds that were heard in the early stages of pleurisy when a small area of the chest alone was involved and a small quantity of fluid only was present, he compared to the bleating of a goat, and called it egophonic. This point in the early diagnosis of pleurisy is but rarely mentioned in modern textbooks of diagnosis. The masters of early periods in medicine were keener observers than we who have the x-ray and the laboratories upon whom we have a tendency to depend for the final opinions or conclusions in a diagnostic sense. Such is unfortunate. Bell's observation as to the gait, appearance of skin, general mannerisms, Conan Doyle has made classic in his Sherlock Holmes detective tales. Such was the common custom of clinical masters subsequent to the period of Laennec.

His third section was devoted to an account of the cough and interpretations of the various characteristic rales, moist or crepitant changes that occurred during such. Laennec but rarely used this, fearing in weakened subjects that exhaustion would result from requesting such.

His fourth section was devoted to the various rales. Unfortunately, in Forbes' translation, the latter called such "rhonchus" instead of utilizing the French word, "rales." In this section every type of rale one is accustomed to find at present is accurately described and carefully named. A synonymous sound is described to convey to the reader the stethoscope finding.

These four sections are today still standing as a finished bit of work—a masterly scientific literary effort. Brief, clear, definite, they should be read by every individual undertaking chest examination today. This article of Laennec describing his discovery of auscultation, and the percussion method of Auenbrugger made possible, even previous to the modern x-ray and laboratory methods, the clear interpretations of pulmonary pathology and cardiac conditions. Outside of Harvey's discovery of the circulation of the blood. Hugh of Lucca's aseptic teachings, Paracesus' confirmation of such, and Lord Lister's transferring of Pasteur's bacteriological wine facts to surgical needs, there is nothing in the history of medicine that has been more beneficial or epoch-making than Laennec's masterpiece, a life's work,—auscultation.

Made finally the chief of staff of Necker Hospital, the place vacated by the death of his teacher, Corvissart, the labors and profound studies that such entailed quickly broke down his naturally weakened constitution. At times he returned to his old home in Lower Brittany for brief rests, but finally, August 23, 1826, the hereditary tendency acquired from his maternal ancestor, closed the eyes of him who is one of the historical masters in our chosen profession.

Accurate in statement, keen as to observation, pitiless in his demand of proof, happy in study, unhurried in reaching conclusions, Laennec stands today the finished teacher in chest diagnosis. Modern medical men use, in part or in entirety, according to their degree of diagnostic attainments, the methods of this master diagnostician,—Rene Theophile Hyacinthe Laennec.

ATYPICAL ADENOCARCINOMA OF THE HYPOPHYSIS, CASE REPORT AND DEMONSTRATION*

DRS. SCHUSTER AND SCHUSTER, El Paso, Texas

The history of our knowledge of pituitary enlargements begins with isolated anatomical reports dating from the year 1700 and continuing until 1886, during which period tumors discovered at autopsy were known to have caused chiefly cerebral pressure symptoms. The combined clinical, anatomical and experimental studies of tumors of the hypophysis have not only thrown much light on the nature and behavior of these growths, but have opened up a field of research which has a broad relation to many problems in the physiology and pathology of all glands of internal secretion. An outline of a brief presentation of this complex subject, which is so essential to the study of hypophyseal tumor, includes first a general knowledge of the anatomy, gross and miscroscopic, the embryology, and the physiology, together with the clinical classification of the growth and a discussion of the pathogenesis of symptoms. Therefore, although it is not within the province of this paper, I feel it not amiss to outline briefly a few fundamental facts concerning the normal gland before entering upon a discussion of the pathological.

The normal anatomy of the hypophysis is complex and several embryological and histological features are of prime importance in tracing the origin of tumors of this organ. The hypophysis is made up of:

(1) An anterior glandular lobe which is developed by an upward evagination of oral ectoderm.

(2) A posterial nervous portion which is an elongated portion of nervous tissue derived from the tuber cinereum at the floor of the third ventricle, and

(3) A stalk or pedicle which passes through the arachnoid and connects the organ with the tuber cinereum.

The anterior lobe or pituitary gland proper is partly subdivided into two lateral portions by constriction of the encircling posterior lobe. A long lingual process of this lobe encircles the stalk, covering the anterior surface below and completely surrounding it above and almost to the optic chiasm. A cross-section of the stalk therefore presents a central cavity, a prolongation of the third ventricle, surrounded by a zone of nervous tissue which is sheathed in turn by the lingual process of the anterior lobe. The lingual process is often designated as pars intermedia.

The anterior lobe is separated from the posterior by a connective-tissue septum, which usually contains a multilocular cleft, the remains of Rathke's ectodermal pouch. About this cleft are often found the remains of salivary gland alveoli.

The posterior lobe (pars nervosa) is a club-shaped mass of glia-tissue which descends from the stalk and partly surrounds and constricts the anterior lobe. It is largely surrounded by a thin sheathing of neutrophil epithelium, merging with a similar sheathing of the stalk, and continuous with the epithelium of the anterior lobe from which it is derived.

The pars intermedia is all that sheath of epithelium which surrounds the posterior lobe and stalk, including the lingual process. Its peculiar relations to the inclosed nervous tissue render it of much physiological interest. Its epithelial cells exhibit evidences of secretion in the form of many colloid globules which collect in round masses between the cells and have been traced apparently passing through the pars nervosa into the infundibulum and thence to the third ventricle and cerebrospinal fluid.

The whole organ is enclosed in a dural capsule which has an upper

(*Read before the Annual Meeting of the Medical and Surgical Association of the Southwest, at El Paso, Dec. 11-13, 1923.

diaphragm stretching from the four clinoid processes and is perforated by the pedicle. Pressure of an enlarging gland is therefore slightly limited above and laterally, while below there is bony resistance.

The structure of the pituitary body is subject to wide variations which are of much significance in the interpretation of functional changes and neoplasms of this organ.

The normal gland contains two main classes of cells, chromophil and chromophobe. A third cell type is chromophobic or neutrophil. The chromophil cells are either acidophil or basophil, by virtue of the microchemical reactions of their abundant granules. It is not yet clear whether the two types are distinct or represent different functional phases of the same cell order. The acidophil are the most abundant of the three types. The basophilic cells are less numerous, but larger than the acidophil. The chromophobe cells are the least numerous of the cell types, and the smallest.

In the pars intermedia the cells lie in small groups surrounded by connective tissue. Often they form alveoli of cubical or cylindrical cells surrounding colloid globules and they have a close relation to the blood-vessels.

The gland gives off two types of internal secretion; one from the pars anterior and one from the pars posterior.

In taking up the function of the posterior lobe secretions, it must be remembered that the active principle of this lobe is a product of its glandular pars intermedia and not of its neuroglia-like posterior portion. In general we might say that extracts of this portion of the gland cause the smooth muscle tissues throughout the body to contract; thus affecting the arteries, arterioles, urinary bladder, and uterus. In addition, the secretions stimulate the flow of certain secretions as breast milk, urine and exert a favorable influence on the formation of urine (either by cell stimulation or augmented circulation), and cerebro-spinal fluid. Again, the posterior lobe secretions have a definite influence on carbohydrate metabolism.

Extracts of the anterior lobe are the ones that particularly control the skeletal growth, or the connective tissues in general, probably in conjunction with other glands in the endocrine circle. Anterior lobe extracts also exert a definite control over the body temperature.

As in the case of neoplastic diseases elsewhere in the body, the immediate etiology of hypophyseal tumor is in obscurity. However, there are to be noted certain predisposing factors, some of which are coupled with increased or decreased activity of the gland. In this connection must be mentioned the psychological epochs of life—as adolescence, pregnancy and the climacteric. It is probable that true tumors often develop on the bases of these functional hyperplasia, or changes in the gland which occur during these periods. Among other predisposing factors there are the acute infectious diseases (particularly typhoid), heredity, trauma, and lastly disturbances of the endocrine chain—as removal of the of the ovaries, thyroidectomy, etc.

In general, the symptomatology of hypophyseal tumors may be divided into two main groups:

(1) Those that are due to and associated with growth pressure, general and local, and

(2) Those due to faulty or perverted physiological functioning of the gland.

The earlier stages of development of the neoplasm may be associated with hypersecretion of the gland with its corresponding signs and symptoms. This is manifested apparently by overgrowth in the form of gigantism when the process antedates ossification of the epiphysis or acromegaly, when it is of later occurrence. Again, in the later stages of the neoplasm, after there is destruction of glandular structures, we expect to find the symptoms of hyposecretion predominating. This is manifested appar-

ently by adiposity, with persistence of both skeletal and sexual infantilism when the process originates in childhood, and adiposity with sexual infantilism of the reversive form, when it originates in the adult. Then, of course, we find the mixed or transitional cases, exhibiting some features of both stages, hypo and hypersecretion, or dyspituitarism. Here we must also mention the myxedematous-like changes, subnormal temperature, mental changes, such as dullness, irritability, loss of memory, hallucinations; polyuria; polydipsia; high sugar tolerance; amenorrhea; obstipation, etc.

Under the general and local pressure symptoms, we may mention first the visual disturbance, as these are the most common and the most serious. Needless to say these cases usually first fall into the hands of the ophthalmologist. We may tabulate under the visual symptoms—

(1) Diminution of visual acuity.
(2) Photophobia.
(3) Ocular headaches.
(4) Exophthalmus—a local stasis phenomenon not due to sympathetic involvement.
(5) Engorgement of the palpebral venules.
(6) Slight degrees of nystagmus.
(7) Edema of the lids.
(8) Ocular motor changes. Under this caption come the paresis or paralysis of the various nerves controlling the eye movements, giving rise to various degrees and types of squint, with their corresponding diplopia. Usually the sixth (abducens) and the third (ocular motor) nerves are involved. Pupillary reactions also come under this heading and here we must mention the hemiopic pupillary reaction of Wernicke.

Then again we have the changes in the optic disc, which are of great clinical importance. In the early stages where we have only a chiasmal blocking, there is a peculiar waxy-like pallor of the discs. This has been shown to be the result of the blocking of the nerve pathways rather than a true primary atrophy. At a later date where the block has been existing for some time, we begin to get nerve fiber degeneration with subsequent loss of substance, and as a result a true primary optic atrophy, with a saucer-shaped cupping of the disc. At a still later date, after the symptoms of generalized, increased intracranial pressure begin to manifest themselves, we may have a neuro-retinal edema, or choked disc superimposed on the atrophic nerve-head. However, even this latter phenomenon may be absent if the nerves are completely enveloped in the tumor mass, thus inhibiting the distension of Schwalbe's sheath. Last, but not least, we come to the changes in the perimetric fields. So we may tabulate:

(1) Homonymous.
(1) Binasal.
(3) Bitemporal; hemianopsia, partial or complete; altitudinal hemianopsia, inferior or superior; amblyopia of one eye and hemiopic defect of the other.
(4) Quadrant defects of one or both eyes.
(5) Scotomatous field defects.
(6) Changes in form and size of the blind spot.

In the early cases we must be on the lookout for the mere tendencies toward temporal defects, particularly defects limited to the color peripheries. In all cases the color fields are involved first and the form fields later.

Next we come to a group of signs and symptoms referable to the mouth and nasopharynx. Leading the list perhaps is epistaxis, moderate or excessive. This may be due to circulatory stasis, due to tumor pressure or to erosion of the walls of the sinuses, as was the condition in our case.

Anosmia is another common symptom due to the impinging of the neoplasm on the olfactory bulbs. Occasionally trigeminal neuralgia is seen; similarly the uncinate region is not infrequently involved by the growth, giving gustatory or olfactory aura associated with epilepsy. Occasionally

we see intermittent and unexpected attacks of profuse mucous discharge into the pharynx. The source of this discharge is probably the invaded sinuses. Cushing suggests that in view of the close relationship of many states of perverted function of the hypophysis to lymph hyperplasia. that there may be a tendency toward adenoid formation. Rarely we may see a cerebro spinal rhinorrhea due to the erosion of the growth into the nasal chamber.

X-ray studies of the pituitary fossa have proven a most useful aid in the study of hypophyseal disease. Deformation of the sella turcica are accessory in value to the clinical symptomatology, for it is a fact that both extreme degrees of hyper and hypo pituitarism may exist with but little alteration in the shadow cast by the bony encasement of the gland.

There are briefly three types of pathological deformation of the sella: (1) where the change is a thickening of the clinoid processes and the dorsum ephippii; (2) thinning from pressure absorption of these parts; (3) destruction of all outlines. There are many subvarieties and overlapping of these types. Gibson has brought out the great importance of the radiographic study of the subjacent sphenoid in connection with the sellar configuration. The radiographic study should include lateral exposures from each side; stereoscopic plates made from the side and above so that one may look down into the fossa. Serial radiograms may be important in studying the progressiveness of the hypertrophy of the gland. Profile radiographic measurements should be made. Cushing states that the anteroposterior measurement of 15 mm and 10 mm in depth may be looked upon as pathological.

Briefly, the main symptoms of general intracranial pressure are choked disc, vomiting (projectile), headache, increased spinal fluid pressure, slowing of the pulse rate. We may also mention the fullness and tortuosity of the palpebral venules, as well as the larger veins of the scalp. The x-ray may show pressure enlargement of the diploic channels and points of pressure atrophy brought about by the small arachnoidal herniations (digital impressions).

Anatomy: The gross anatomy of hypophyseal tumors may be classified according to the origin, namely:

(1) Tumors of the pituitary body.

(2) Tumors of the hypophyseal duct and its derivaties.

(3) Tumors of the pars intermedia.

(4) Tumors of the pars nervosa.

Tumors of the pituitary proper include:

(a) Diffuse hyperplasia and focal adenoma.

(b) Adenocarcinoma.

(c) Malignant atypical carcinoma (sarcoma).

Our case falls under the tumors of the anterior lobe and, from the microscopic findings, under the third subdivision.

In taking up the pathology I shall begin with the gross morbid anatomy. The size of these tumors varies greatly, but they regularly distend or rupture the dural diaphragm, they widen and absorb the sella so that the x-ray shows extensive excavation, the clinoid processes are often destroyed and the basilar portion of the sphenoid may be extensively eroded. Growing beyond the sella, the tumor compresses the optic chiasm, extends along the frontal lobes and penetrates the third and even the lateral ventricles. Usually the tumors long remain solid, but cysts form from colloid secretion, hemorrhage and necrosis. In one group the tumor tends to become cystic from the first and many areas filled with soft colloid material are traversed by thin strands of epithelium, or well-marked papillary outgrowths develop. In many of these cases the growths communicate with the posterior superior nares and produce a watery or bloody discharge. Access to the ventricles may be accompanied by hydrocephalus.

The structure of the pituitary adenocarcinomas varies extensively. Ma-

lignant atypical carcinoma has usually been reported as sarcoma, and a considerable proportion of pituitary tumors falls in this class. Some resemble the adenomatoid hyperplasia with solid cords or compact groups of atypical polygonal epithelium. Most of the cells are distinctly chromophobic and chiefly acidophil cells occur in these cases. Other tumors are still more atypical, composed strictly of chromophobic cells, arranged in cords or groups, or often forming distinct acini in which colloid secretion may accumulate. Excess of such colloid or fluid may yield soft cystic growths in which a papillary structure may appear. A perivascular arrangement of cubical or cylindrical cells is common and numerous blood vessels with their epithelial sheaths may simulate a papillary adenoma. Many cellular growths fail to show any subdivision of the cells into groups or acini and the structure is diffuse.

In our case we have a very friable cystic growth that apparently has undergone some necrosis with hemorrhage. The microscopic picture shows a diffuse distribution of chromophobe cells which line large blood sinuses, very few trabeculae and the tumor is exceedingly friable. In our case the brain only was examined, which was removed in its dura envelope, together with the sphenoidal bone intact. The dura showed many large pacchionian granulations. There was a cerebellar herniation through the foramen magnum. The convolutions were flattened. On dissecting away the sphenoidal bone from below it was found that the intrasellar part of the tumor had distended and absorbed the right side of the pituitary fossa and partly herniated into the sphenoidal and ethmoidal sinuses. Practically nothing but mucous membrane covered this portion of the tumor. The growth had extended over the right frontal lobe, impinging on the olfactory nerve. The growth had burst through the right side of the punctured dural envelope. It then spread upward, and deformed the



FIG 1. Brain showing location of tumor.

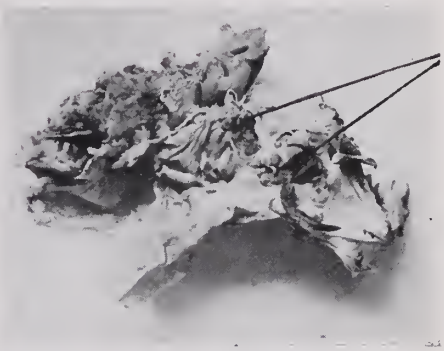


FIG. 2. Tumor bursting through dura.



FIG. 3. Photomicrograph of tumor section.

brain to a certain extent by indentation rather than invasion. The extension obstructed the foramen of Monro, impinging on the right optic tract and almost extended into the lateral ventricle. A portion extended into the temporal lobe, deforming the region. The growth actually lies within the sub-dural space and has merely pushed aside the intact pia-arachnoid. The metastasis was a reddish friable cystic tumor mass. The entire chiasma was found to be dislocated far to the right, the tract being quite considerably thin. The brain-stem was dislocated backwards; the foramen of Monro was obstructed, causing an obstructive acute hydrops of the lateral ventricle and probably accounting for the sudden termination.

I have selected this case in particular to report to you because it presents a great variety of signs and symptoms of hypophyseal disease and we were able to trace the pathogenesis of many of the symptoms at the postmortem examination. For the sake of conservation of time, I shall limit myself to the enumeration of the positive findings only.

CASE REPORT

M. B., age 28, single, height 5 ft. 2 in., weight 160. Adipose, pasty-looking; came complaining of (1) poor vision, and (2) occasional diplopia two weeks' duration. On careful questioning, observation and examination, the following signs and symptoms were elicited:

Family and childhood history, negative. Her mental condition was decidedly sluggish and the patient seemed drowsy. Gait uncertain, somewhat staggering, a bit spastic. Speech slow, apparently difficult. There is a history of repeated headache attacks. She was suffering from very marked constipation, due partly perhaps to the lack of hypophyseal secretions and their effect on smooth muscles. There was a marked polyuria. She had had frequent attacks of epistaxis and nasal discharge. The head was rather large, jaw a bit protruding, but not definitely acromegalic. Right vision 5/200; left vision 20/30. There was engorgement of the palpebral veins, a slight exophthalmus. There was a partial paralysis of the right sixth nerve and a slight involvement of the third nerve. This was manifested by an inhibition of ocular movements in the sphere of action of the involved muscles. The right pupil was partially dilated, sluggish in reaction. The fundus showed the right retina generally hazy, the disc white and atrophic, with a superimposed edema. The retinal arteries were somewhat narrowed, the veins tortuous and distended. The left disc was choked with the accompanying vessel changes. The perimetric fields showed a right homonymous hemianopsia. The left field was generally contracted, but showed the hemianopic defect. The general neurological findings may be summed up by the spastic involvement of the left side of the body with the sign of involvement of the upper motor neurone. This was probably due to the involvement of the cerebral peduncles. The spinal fluid showed a very high pressure, but the chemistry, including Wassermann, Mastic, Lange tests, was negative. Temperature was normal throughout except for terminal rise. Urine was negative. There was no glycosuria. The vestibular tests were not performed on account of the sudden termination of the case with respiratory failure.

In lieu of the foregoing enumeration and explanation of the signs and symptoms of neoplastic hypophyseal disease in the preceding pages, it is clear that we were dealing with a fairly stereotyped case.

Because of the remarkable clinical phenomena with which they are associated, the uncertainty regarding the origin and nature of the processes concerned, and the peculiar problem involved in their diagnosis and treatment, tumors of the hypophysis form one of the most interesting of all groups of new growths.

BOOK REVIEWS

PROGRESS IN CHEMOTHERAPY AND THE TREATMENT OF SYPHILIS

By George W. Raiziss, Ph.D.

This is to be the title of a quarterly pamphlet issued by The Dermatological Research Laboratories of Philadelphia, now a branch of The Abbott Laboratories of Chicago. In it are abstracted a number of articles under the headings of Dangers of Insufficient Dosage, Intramuscular Injections, Reactions Following Intravenous Injections of Arsphenamines, Elimination of Arsphenamine, Physical-Chemical Properties of Arsphenamine, Two New Remedies—"Tryparsamide" and "Bayer 205," and Bismuth Compounds in the Treatment of Syphilis.

This pamphlet can be secured from the Abbott Laboratories, without charge, by any doctor who desires one.

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ANNUAL MEETING OF THE NEW MEXICO STATE MEDICAL SOCIETY

Santa Fe, New Mexico
May 27, 28, 29, 1924
Meetings Held at the Elks Lodge

MORNING SESSION—MAY 27, 1924

9.00 Registration.
9.30 Meeting of the Council.
10.30 Call to Order, by the President.
10.05 Invocation .....Rev. W. S. Trowbridge
Address of Welcome .....Mayor Nathan Jaffa
Presidential Address:
"Medical Education of the Public".....Dr. J. W. Stofer
Gallup, N. M.
11.15 Meeting of House of Delegates.
Adjournment to 2 p. m.
2.00 **"Fractures"** .....A. R. Hatcher, M. D., F. A. C. S.
Wellington, Kan.
Discussion opened by Dr. Miner.
"Hospital Standardization, From the Doctor's Standpoint"....
.....A. C. Scott, M. D., F. A. C. S.
Temple, Texas
"The Influence of Hospital Standardization Upon Community Welfare" .....Felix Miller, M. D., F. A. C. S.
El Paso, Texas
Discussion opened by Dr. P. G. Cornish, Sr.
Discussion open to the general assembly as a round-table discussion.
Adjournment to 8 p. m.
8.00 Public Session at the State Museum Auditorium.
"Paper on Public Health Problems".....
.....Surgeon L. L. Lumsden, U. S. P. H. S.
"Public Health Problems".....Dr. P. W. Covington
Rockefeller Foundation

MAY 28, 1924

MORNING SESSION—ELKS LODGE

9.00 Meeting of the Council.
10.00 Morning Scientific Session.
"Nervous Diseases and the General Practitioner".....
.....Dr. Karl A. Menninger
Topeka, Kan.
Discussion opened by Dr. Vogt, Albuquerque, N. M.

"One Phase of Pneumonia (viz. Aspiration Pneumonia)"....
.....Dr. W. S. Lemon
Rochester, Minn.

Discussion opened by Dr. C. C. Davis, Albuquerque, N. M.

"Case Reports of Certain Diseases Simulating Tuberculosis"....
.....Dr. A. M. Forster
Colorado Springs, Colo.

Discussion opened by Dr. Gekler.

"Indications, Method and Results of Ambulatory Treatment of Peptic Ulcer" .....Dr. E. C. Fishbaugh
Los Angeles, Calif.

Discussion.

AFTERNOON MEETING

1.00 Meeting of the House of Delegates.

2.00 **"Thyroid and Tuberculosis"** .....Dr. W. A. Gekler
Albuquerque, N. M.

Discussion opened by Dr. Fall, Roswell, N. M.

"Some Phases of Thoracic Surgery".....Dr. P. G. Cornish, Jr.
Albuquerque, N. M.

Discussion opened by Dr. W. H. Woolston, Albuquerque, N. M.

"Nasal Tuberculosis" .....Dr. S. A. Schuster
El Paso, Texas

Discussion opened by Dr. H. M. Brehmer, Albuquerque. N. M.

"Infant Feeding After Weaning".....Dr. M. K. Wylder
Albuquerque, N. M.

Discussion.

Adjournment at 7 p. m.

7.00 Banquet. Place to be announced.

MAY 29, 1924

MORNING SESSION—ELKS LODGE

8.30 Meeting of the Council.

9.00 Meeting of the House of Delegates.

Scientific Session.

10.00 **"What Is Traumatic Hernia?"**.....Dr. P. J. Kaster
Topeka, Kan.

Discussion.

"Prostatic Obstruction and Its Surgical Treatment".....
.....Dr. K. D. Lynch, El Paso, Texas

Discussion opened by Dr. G. S. McLandress.

Afternoon Scientific Session.

1.30 **"Focal Infection"** .....Dr. H. A. Ingalls, M. D., F. A. C. S.
Roswell, N. M.

Discussion opened by Dr. M. K. Wylder, Albuquerque, N. M.

"Climate and Blood Pressure, as Related to Tuberculosis".....
.....Dr. W. H. Crosier, Deming, N. M.

Discussion.

"Acute Intestinal Obstruction".....Dr. J. H. Hannett
Gallup, N. M.

Discussion opened by Dr. C. B. Elliott, Raton, N. M.

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ST. JOSEPH'S HOSPITAL (Phoenix) STAFF MEETING

The regular monthly meeting of the St. Joseph's Hospital Staff was held on April 17th. Twenty members were present.

Motion was made that the staff extend its very cordial sympathy and condolences to Dr. H. P. Mills, member of the staff and pathologist to the hospital, who had just suffered the loss of his wife. The committee appointed to make this expression on behalf of the staff were Drs. Willard Smith, R. J. Stroud and A. J. McIntyre.

A discussion of the discrepancies between the operative diagnosis of the surgeon and the pathological report of the pathologist was the first order of the program. Some of the surgeons thought that if the pathologist could see the tissues in situ at operation, it might sometimes modify his opinion. The pathologist thought that his examinations should not be biased by any knowledge of the operation, but should be based on microscopical appearances.

The main program was a consideration of cancer, and the relation between surgical treatment and radiation treatment, illustrated by cases taken from the hospital records.

Four cases of cancer of the mouth were related, one patient with carcinoma of tonsil being shown. The method of applying radiation to these cases was described, usually a combination of radium needles and intensive x-ray. When at all advanced they are usually hopeless and palliation only can be hoped for. One patient with carcinoma of antrum was progressing very satisfactorily, when he died suddenly from an anginal attack. Another case with carcinoma of antrum, treated by surgical excision and radiation, was doing well, when he developed acute nephritis and died. Two other cases were alive, but ultimate outcome hopeless.

Uterine carcinoma was illustrated by five cases, and the present status of the advisable relation between surgery and radiation described. Briefly, this is (1) lesions entirely within the cervical canal should be radiated with radium, then hysterectomy performed, followed by x-ray therapy; (2) lesions which have spread beyond the cervical canal are not operative, and should be treated entirely by radium and x-ray; (3) lesions of the body should have radium, then hysterectomy and then x-radiation. Some authorities no longer regard any lesion of the cervix as operative, but consider them all radiation cases.

Carcinoma of the breast was illustrated by one case in which one of the recognized methods had been followed. Unless the condition is far advanced, there should always be some combination of surgery and radiation performed; one of two courses may be followed; (1) preoperative radiation, with operation within a week, followed after healing has taken place, by thorough radiation of the entire lymph drainage area; (2) operation without radiation, with immediate examination of tissue which determines the extent of the operation, and followed as soon as surgical shock has been recovered from by thorough radiation by x-ray, if pathological examination shows malignancy.

One case of embryonic carcinoma of the ovary, with large cyst, was discussed, in which wound was left open sufficiently for radium to be inserted; 50 mg. capsule was left in center of tumor for 48 hours, and this was followed by intensive x-radiation; the tumor had almost entirely disappeared at last record of the patient.

A sarcoma of the back was removed surgically, and radium buried in the incision for twenty-four hours; this was followed by x-radiation to the destructive degree. Primary area was slowly recovering from the radiation, when metastasis in pelvis developed; at operation this was found firmly incarcerated in the posterior cul-de-sac, and as large as a grapefruit. It was not removed, but radium inserted in prostatic applicators into the tumor through the vaginal vault, and left in position 24 hours, without much hope of success. Prompt subsidence of tumor resulted and patient is in good health a year after this treatment; being encouraged by this result, she was recently given a series of intensive radiation over the pelvis, and tumor shrunk further, and is now freely movable. Operative removal is being considered. Further metastases have not developed.

DISEASES OF THE SKIN, by Richard L. Sutton, M. D., LL. D. Professor of Diseases of the Skin, University of Kansas School of Medicine; former chairman of the Dermatological Section of the American Medical Association; Assistant Surgeon, United States Navy, Retired; Dermatologist to the German Church Hospital. With one thousand sixty-nine illustrations and eleven colored plates. Fifth edition, revised and enlarged, 1214 pages. C. V. Mosby Co., St. Louis. 1923.

This book should be in the library of every general practitioner, as well as that of every dermatologist. It is well bound, the print is large and the printing well done. Dermatology is the one branch of medicine in which diagnoses are made on what is seen, and this idea has evidently been in the author's mind, because the book is profusely illustrated. Each disease has illustrations showing every locality and form of eruption, and the illustrations are exceptionally well done. The reading matter is devoid of highly technical phrases, and is concise without depriving the reader of important details or making it so dry that he loses interest. The sections on treatment are very thorough in their detail, and the various methods of giving treatment are explained with great care. In fact, it is an ideal book on skin diseases for the entire medical profession. W. R. J.

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ST. MARY'S HOSPITAL (Roswell, N. M.) STAFF MEETING

(C. M. Yater, Staff Secretary

At the monthly meeting of St. Mary's Hospital Staff held on the night of April 15th, the following case was presented by Dr. R. L. Bradley:

Male, age 54, first seen on Feb. 22, 1924.

F. H.: Father lived to be 106 years old. Mother accidentally killed at age of 63. One brother died of influenza at age of 45. One brother accidentally killed at age of 40. One sister living and in good health at age of 60. Patient never had any serious sickness.

P. I.: Has had pain and tenderness in right hypochrondrium for the past ten years, but never severe enough to put him to bed.

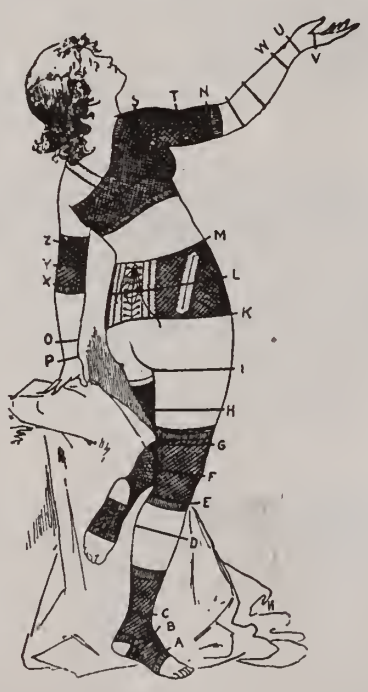
Present attack began on Feb. 11th, with pain and tenderness over McBurney's point, very marked.

P. E.: Well-nourished, muscular man, complaining of pain in abdomen in region of McBurney's point, slight rigidity right rectus, gas in intestines, leans to right when standing. Had bowels moved by black draught (?) self administered. T., 98.5+ 103.8; P., 88+106; blood, W. B. C. 14,000, 70% Poly; circulation very poor, part of time no radial pulse. Operated same day by opening abdomen and draining a well-walled off appendicular abscess; appendix found, ligated and stump dropped back in abscess cavity, drain installed, wound stitched with chromic gut and patient sent to room. During the operation the heart action was very irregular and at times alarming, however, patient sent to bed in apparently good condition. Drainage was profuse and all went well and drain was removed on Feb. 27th, with everything looking good and light gauze drain substituted; T., 99.

On 29th, blood, apparently venous, began to come up when he would clear his throat. Light cough, no pain or rales in chest; T., 100.

March 1st, still expectorating blood, light cough, T. at 4 p. m. 103.5; 7 p. m., T., 103.6, wound draining well and in good condition, expectorating blood freely, venous in appearance, breathing hard, P. 104. March 3rd, expectoration quite dark, with free blood ,pain on coughing, perspiring, pulse very weak, sleeping at intervals that night. March 4th, 8 a. m., radial pulse barely perceptible, very weak but regular; at 8 p. m. coughing up large quantities of blood, hiccough, moaning in sleep, pulse very weak. Hiccough continued at intervals until the 11th, when it ceased entirely, though at times during this period of seven days it was very severe and distressing.

March 5th, under stimulation the radial pulse returned and was of fairly good quality, though since 5 o'clock a. m. on this date the hemoptysis had been rather profuse and had been for the past 12 hours. This bleeding kept up, and on the 9th rales were heard in the middle lobe of the right lung posteriorly with bronchial breathing. On the



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11th of March the expectoration was copious, mixed with black blood and mucus, rales all over middle lobe.

On 12th, bronchial breathing and consolidation right lung, expectorating blood and mucus.

Matters went on in this manner, with patient gradually making some improvement until March 29th, when he began to drain pus through the bronchi, this being expectorated freely.

April 1st, a section of the fifth rib posteriorly was removed under local anesthesia and abscess of the lung drained, when the drainage through the bronchi ceased immediately. At this time the abdominal wound had healed entirely. Drainage was free from the chest wound and the man began to improve from that day and has convalesced continuously since.

Subsequent report: Drainage kept up quite freely from the chest wound and on April 18th the lung abscess cavity was irrigated with Dakin solution, and again on the 19th, since which time the drainage has been very scant and the cavity almost obliterated, until now, on April 23d, it holds less than a half ounce. Patient cheerful, good appetite, sleeps well and bids fair to be out of hospital soon.

BERNALILLO COUNTY MEDICAL SOCIETY

(Albuquerque, N. M.)

The Bernalillo County Medical Society held its regular monthly meeting on April 2nd, Dr. D. C. Dodds presiding.

Dr. A. H. Vogt read a paper on "Some Phases of Neurosyphilis" and brought out the conclusions that (1) neurosyphilis commences from the 25th to the 118th day; (2) pregeneralization stage which is vulnerable; (3) no course of treatment is complete without spinal fluid examination; (4) neurologic involvement best treated by drainage and Ogilvie's method; (5) treatment must be long continued.

Dr. C. C. Davis gave reports on tuberculous fistulae, stating that some had been treated with two per cent mercurochrome with very good results in most instances.

Dr. Gekler discussed the last mentioned paper and stated they had been treating such cases for two years with gentian violet, medicinal methylene blue and acriflavine, as cases seemed to warrant, and results in some were very good.

L. B. COHENOUR,
Sec.-Treas.



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McKINLEY COUNTY MEDICAL SOCIETY

(Gallup, New Mexico)

As a result of the resolutions adopted in January this year by the McKinley County Medical Society calling attention of the Department of the Interior to the prevalence of trachoma and tuberculosis among the Navajo Indians and the exposure of the adjacent white population to these contagious and infectious diseases the Department of the Interior held a meeting with local physicians and the physicians in the employ of the Indian Service on the reservation. The conference was held at the "El Navajo", in Gallup, April 21st.

The following officials and out of town doctors took part in the conference: Dr. Hubert Work, Secretary of the Interior; Commissioner Burke, Bureau of Indian Affairs; Dr. John McMullen, trachoma specialist of the U. S. Public Health Service; Dr. Perkins, eye specialist in the Indian Service; Dr. Newberne, Chief Medical Supervisor of the Indians; Herbert G. Hagerman, Commissioner of the Navajo Indians; Dr. Moffet of New York, head of the Presbyterian Mission Work; Dr. G. A. Luckett, State Director of Public Health; Dr. J. W. Bazell, Navajo County (Ariz.) Health Officer; Gertrude Light, Shepard-Towner Child Welfare Dept.; Dr. Oscar S. Brown, Santa Fe surgeon, Winslow, Ariz.

All of the physicians from the Indian Reservation and a number of the local physicians attended the conference.

The morning session was taken up with a discussion of trachoma, and Dr. McMullen gave a very interesting lecture on this disease in which he was very optimistic as to an early cure by persistent and radical treatment. He recommended grattage with gauze and a 1-5000 bichloride of mercury solution, repeated if necessary. This was to be followed with

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For intramuscular use. For patients with small or inaccessible veins, in neurosyphilis, or other instances when this appears to be the arsenical of choice, physicians are urged to employ this reliable American-made brand, the first to be made in this country.

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the usual antiseptics such as boric acid solution and argyrol or silvol solution. Care was to be taken, however, not to cause an argyrosis by too persistent use of silver salts. He demonstrated his methods of treatment upon cases at St. Mary's Hospital.

The topic was freely discussed by physicians from the reservation as well as local doctors and attention was called to the fact that with the large number of Navajos infected it was an almost hopeless task for the few physicians on the reservation to cope with the disease. It was estimated that from 25 to 40 per cent of the Navajos were infected with trachoma.

It was mentioned also that it was a difficult matter to keep the allowed quota of physicians on the reservation on account of the isolation they must undergo and the very inadequate salaries paid by the Indian Service.

There are about 35,000 Navajo Indians on the reservation, scattered over a wide territory, while the Indian Service has provided for only nine physicians to care for them. Another complaint was the placing of trachomatous children and healthy children in the same schools and the same dormitories.

Dr. W. W. Johnston, the new full time Health Officer of McKinley County, said there were a number of cases of trachoma among the children in the public schools of Gallup, but he could not say just how many as he had not been here long enough to make a complete canvass of the schools.

The afternoon was taken up with a discussion of tuberculosis among the Indians and many of the same conditions and faults were found as with trachoma, the Indians being very unsanitary and entirely ignorant as to the cause of the disease or the methods by which it is spread. There

are on the reservation very few hospitals devoted to the care of tuberculosis and most of these were maintained by various missions.

It was mentioned also that there is no medical organization in the Indian Service and that the physicians on the reservation are under the supervision of the school superintendents, who have no large amount of knowledge of sanitation and hygiene and who are only indirectly interested in such matters.

Dr. Work promised organization of the medical department with a physician at Washington at the head of the department, but owing to the lack of funds it would not be possible to do all that had been suggested. He also called attention to the fact that this is not entirely a government proposition, but that the local and state health officers should take an active part in the campaign against these diseases, especially in preventing its spread among the white population, and that much of the program of eradication depends upon educating the Indians.

J. W. STOFER, Secy.

ST. MARY'S HOSPITAL (Gallup, N. M.); ANNUAL MEETING AND BANQUET

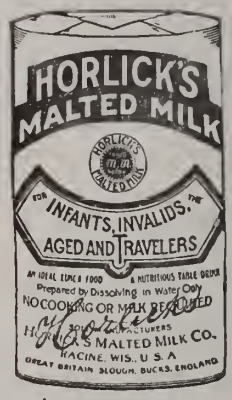
On April 24th, at 8 p. m., at St. Mary's Hospital, occurred the annual banquet of the Hospital Staff. This function is given each year by the hospital Sisters to the staff and all the profession of Western New Mexico, Northern Arizona, and as far west as Needles, California. The dental profession of McKinley County were also guests of the Sisters. The after dinner talks were not strictly confined to scientific subjects. The following is a list of the doctors and their subjects:

Dr. J. W. Stofer of Gallup, president-elect of the New Mexico Medical Society, "The Value of Hospitals in a Community."

Dr. H. G. Willson, secretary of the staff, "My Days of Early Practice in Gallup."

Dr. A. H. De Long, "Medical Education."

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Dr. Edward Abrahams, chief surgeon for the Gallup American Coal Company, "Industrial Surgery."

Dr. A. M. Washburn, who came to the Gallup American Coal Company from Chicago, "General Practice as Compared with Contract Practice."

Dr. C. E. Biernick, "Medical Practice Among the Indians."

Dr. Morton of Needles, California, "Hospital Standardization and Keeping the Quacks Out of Hospital Practice."

Dr. W. W. Johnson, full time County Health Officer of McKinley County, "Sanitation."

Dr. H. T. Watson of McGaffey, New Mexico, president of the McKinley County Medical Society, member of the State Board of Examiners and member of the present State Legislature, "Medical Legislation."

During the evening friendly hostilities broke out between the medical and dental branches of the profession, Dr. W. D. Cornell of Gallup leading the attack for the dentists. Dr. Cornell also talked on likelihood of secondary infection of the tonsils from infected teeth. Many good stories were told and a general feeling of relaxation prevailed.

The Oklahoma spring chicken was good, the punch was better and the strawberry short cake was "divine!" The Sisters surpassed all former attempts in culinary art. The members who missed this banquet missed something worth while.

Rollie's orchestra furnished the music. Dr. J. W. Hannett, Chief of Staff, acted as toastmaster.

HOOF AND MOUTH DISEASE

(Report of a Committee appointed by the Los Angeles County Medical Association, to suggest ways and means of checking the epidemic in California.)

Hoof and mouth disease is admittedly an infectious disease which, after it appears in a herd, is disseminated with great rapidity. The virus of epidemic infectious diseases may be disseminated through the following agencies:

1. By contact of one infected animal with another, whether the former animal actually has the disease or is merely a carrier of the virus.



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2. By the water supply which may be contaminated at its source or in the immediate vicinity of the consumers, as in a common drinking trough.

3. By insect carriers which may convey it directly on their feet or bodies from the lesions of one animal to the mouths and nostrils of another. Or the virus may undergo a cycle of development within the body of the insect host and then be transmitted by bites to other animals. The latter method requires a number of days for the development in the insect host, of the infectious stage of the organism. Among the former known insect carriers the fly is by far the most important.

4. Through the food supply, which, if exposed to a common source of contamination such as might be found in a common manger and in garbage, could conceivably distribute the infection with great rapidity.

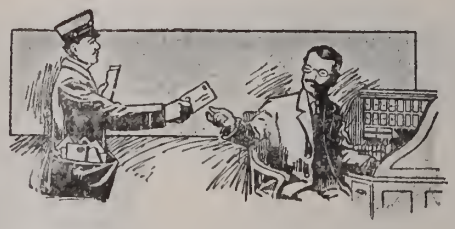
5. By other inanimate carriers of the virus such as dust, clothes, vegetables, fruits, automobiles, etc.

CONSIDERATION OF THE HOOF AND MOUTH DISEASE IN THE LIGHT OF THE ABOVE DATA

Hoof and mouth disease has been known to appear in localities far distant from known infected territory, and when it appears in a herd, say of cattle, it spreads with lightning-like rapidity, from 50 to 100 per cent of the herd being affected within three or four days. The two problems that arise are: (1) How is it introduced into the herd? (2) By what means is it so rapidly disseminated? Obviously there are many conceivable agencies through which it might be conveyed over a considerable distance from an infected to a non-infected point. Probably the most universal possible carrier of the infection in the environment of animals is the fly, which at present swarms about all herds. It is said that the fly does not travel long distances by its flight, but it is well known that it follows persons and animals and is carried by conveyances such as automobiles and railroad trains over long distances. In fact, one of us recently visited an infected herd; the flies were swarming about the automobile and perhaps several hundred of them left the premises with it, and some of them continued with it during the entire trip of a number of miles back to the city of Los Angeles. Flies, of course, follow garbage when it is hauled long distances.

One of us has a ranch in the San Fernando Valley and he has observed that on visiting his ranch that flies have entered his automobile and large numbers of them have been carried back to Los Angeles.

It is known that flies swarm on the lesions of hoof and mouth disease and in the motion pictures recently shown of infected animals the flies can be seen crawling upon the lesions. To our mind, the most likely conveyor of the disease from one infected point to another is this universal pest, and



A Doctor Said:

"In the morning mail came a letter from an attorney requesting an interview relative to a settlement for alleged malpractice.

"If there are any papers served on me I will forward them at once.

"It makes a fellow feel good, to have your contract, like years and years ago, when you broke some one's window and you knew Dad was behind you."

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THE NEW YORK TIMES.

CHEMISTS ENDORSE GELATIN AS FOOD

Experiments With Baby Clinics Show Nutrition Value When Mixed With Milk.

An Important Aid to Digestion—Ration of Gelatin and Oats Recommended.

Special to The New York Times.

PITTSBURGH, Pa., Feb. 2.—Chemists at the Mellon Institute of Industrial Research, University of Pittsburgh, have recently completed a scientific investigation of the food value and dietetic importance of gelatin. As a result of this study they announce that gelatin is of much greater importance as a food than is generally realized. Hitherto it has been popularly regarded chiefly as something to make other foods more attractive and palatable, but now, the chemists say, it should receive more and more consideration for its own nutritive value.

The report deals with the raw materials used in making gelatin, the process of manufacture, its dietetic properties and its food uses.

An Aid to Babies.

Co-operative experiments with baby clinics, the report asserts, have shown such remarkable results from the use of gelatin in infant feeding and malnutrition of children that the serious attention of the medical profession is called for. It tells of babies who lost weight on the usual milk formulas, but recovered when 1 per cent. of gelatin was added, and of children who could take gelatin with milk or cream when nothing else agreed with them. The report also sets forth the value of gelatin for convalescents and invadids, especially those suffering from fever, tuberculosis and diabetes.

The greatest benefits derived from the use of gelatin as a food, the report adds, come when it is combined with other foods, such as cereals, bread, milk, eggs and ice cream. It points out that the addition of small quantities of gelatin to ice cream not only makes this delicacy more palatable, but actually increases its food value and makes it easier to digest.

Valuable Addition to Diet.

The report says that gelatin is a valuable addition to the diet because it is easily digested, saves protein, aids in the digestion of other foods, especially milk and milk products, has remarkable supplementary value when fed with many protein foods, and has useful physiological effects.

Gelatin is one of the easiest proteins to digest, the report adds. It also says that gelatin materially decreases the waste of body nitrogen.

"Dr. Krummacher concluded from a series of tests," the report continues, "that gelatin supplies the body with energy, and hence prevents the cleavage of body protein."

Dr. Thomas B. Downey of the Mellon Institute, according to the report, has found that 5 per cent. of gelatin in a ration containing 9 per cent. of rolled oats proteins, added salts and vitamins, is adequate for the normal growth of the animals used in the experiments. The animals fed on this ration, without the gelatin, grew at only one-half the normal expectation, but the addition of 5 per cent. of gelatin was followed by their return to normal weight and apparent health.

"This research," says the report, "shows the wisdom of the liberal use of milk with rolled oats and oatmeal as a breakfast food. In addition, it demonstrates the advantage to be obtained by including gelatin therein. This improvement can be made easily by the addition of granulated gelatin to the cooking cereal some five or ten minutes before its removal from the double-boiler."

The report also says that white wheat bread and whole wheat bread probably would be increased in nutritive value by the addition of gelatin.

The report says that Dr. Downey has listed seventy-five distinct applications of gelatin to food uses. One of the most interesting recent discoveries, it adds, is that gelatin adds to the food value of ice cream as well as making it smoother and more palatable.

Physicians, Nurses and Dietitians

should read this reprint from The New York Times on the health value of Gelatine, of which the highest and purest grade is Knox Sparkling Gelatine.

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we believe that all other means of transmission fade into insignificance when compared with it.

After the disease has been introduced into a herd it spreads with such rapidity that it seems improbable that even the fly could disseminate it so quickly and thoroughly. We must, therefore, seek another avenue of infection. The two things that a herd do regularly and universally are eat and drink, and we understand that they drink from a common water trough and also that they sometimes eat from a common manger. It is readily conceived that if an infected animal drinks from a common trough the water will be contaminated and the infection universally introduced into the other animals. The fluidity of the medium would disseminate it more rapidly than it would be disseminated from a common manger, and it seems more likely that its spread through a herd is by this agency. We understand that precautions have been taken only rarely in the fight against this epidemic against the transmission by the fly and by the drinking water, and we believe that no other measures will be of any avail if these two important agents of infection are neglected.

RESEARCH ON THE METHODS OF INFECTION

An analogous situation may be found in the history of yellow fever. Before the method of transmission was discovered, measures similar to those now being employed by the hoof and mouth disease were widely used. It was thought that yellow fever was conveyed by discharges on clothing; by "miasmas"; by dust; by inanimate objects; by infected persons or carriers of infection, etc., and the most stringent measures were employed, often to the extent of "shotgun" quarantine. Places were washed with disinfectants; streets were disinfected; clothes were disinfected; and every conceivable precaution taken against infection being conveyed by inanimate objects, all without avail. It was not until research demonstrated that the disease was conveyed by mosquitos, and only by mosquitos, that it was controlled. This demonstration was made in Cuba by the Army Yellow Fever Commission, directed by Dr. Walter Reed, and the method that they used is a model which can well be followed in the study of hoof and mouth disease. They isolated healthy men over a considerable period of time, taking every precaution against the introduction of any infection. When they were sure that these men were not already infected they introduced various objects into the building such as soiled clothes from yellow fever patients, soiled bed linen, etc. The men did not acquire yellow fever. Then they introduced into the building mosquitos of a certain genus which had been fed upon yellow fever patients, and the healthy men acquired yellow fever. It would be easy to carry out a similar series of experiments with hoof and mouth disease. Experiments may be enumerated as follows:

1. Healthy animals should be isolated in say seven groups of two or more animals to the group in doubly screened cages and fed clean food and sterile water. They should be kept thus for a period of time beyond the known incubation period of the disease, say one week. When it is certain that none of these animals were brought in during the incubation period and that they are all healthy, then they can be exposed to various possible agents of infection, one group being kept without exposure for a control.

2. Into the cage of one group should be introduced flies which have been allowed to crawl and feed on the lesions of the disease.

3. Another group should be given drinking water from the common trough of an infected herd.

4. Dirt from the environment of an infected herd should be scattered in another cage.

5. Food from a common manger of an infected herd should be fed to another group.

6. The clothes worn by attendants of an infected herd should be introduced into another cage.

7. Another group should be placed side by side with infected animals in another screened cage, there being at least a six-inch space between the screens of the two cages. This would determine whether or not the infection is an air borne respiratory infection.

If these experiments should demonstrate that the fly and the water are the two sources of dissemination of the infection, then the problem of control would be simplified and the attack upon the disease could be made from these two angles. We believe that if this were done, the disease could be rapidly and effectively controlled.

For the present we would recommend that special effort be made to eradicate flies by destroying their breeding places, that precautions be taken against the transportation of flies by vehicles and trains, that herds of susceptible animals be protected as far as possible from flies by the destruction of these pests, that garbage treated by heating be fed, and that chlorinated running water be supplied to all susceptible animals.

Itinerant inspection should be discouraged and permanent inspection approved on account of fly transmission. The outer clothing of inspectors should be left on the premises.

All unnecessary measures should be eliminated and rational quarantine established.

(Signed)
HARLAN SHOEMAKER, M. D.,
THEODORE LEPTER, M. D.,
WALTER V. BREM, M. D.,
Committee on the Hoof and Mouth Disease Appointed by the Los Angeles County Medical Association.



STOLEN! smashed! *sunk!*

—and then the Japanese owner rescued his Corona from Bombay Harbor, and wrote us this quaint and remarkable letter.

Gentlemen:

"I am writting here an incident which occured me a few weeks ago at Bombay.

"One day my "CORONA" 3 was found missing from my room. On next day a gang (3) of thieves were brought up for my identificaion, a piece of work rarely possible in this country!

"There were no difficulty to do so, you know, because all of them wore something mine, such as shoes, under shirts, uniform, etc.! Extraordinary, isn't it.

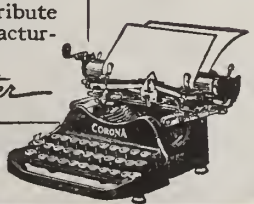
"When questioned after my tyepwritter a thief answered to the effect that he had taken the case for cash box, and dropped it on the stone quay, 20 feet below, so as to break the case on it, but on finding useless article, instead of money, he kicked the whole into the dock water! and left no trace!

"Later a diver succeeded in giving rebirth to the machine, but in so wretched and lifeless condition that nobody thought it any use.

"Suddenly, an idea came accross to my mind to do the best. I started cleaning and overhauling at once, assisted by a shipmate or two.

"Three days' hard labour utterly changed the situation, the machine being found again in a working order to the great surprise and joy of all the present. I attribute this wonderful incident solely to your credit in manufacturing the machine."

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THE THIRTY-THIRD ANNUAL ARIZONA MEETING

The Arizona State Medical Association held its thirty-third annual meeting at Phoenix, April 24, 25 and 26, with a very good attendance from all sections of the state. Delegates from Navajo, Coconino, Mohave, Yavapai, Cochise, Greenlee, Pima, Gila and Maricopa were present.

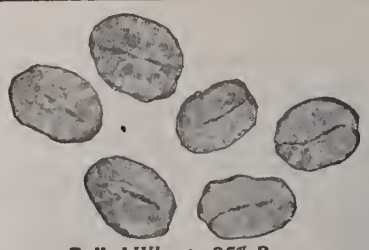
A special feature was the annual dinner of the Arizona Antituberculosis Association on Thursday evening, to which all visiting doctors and their families were invited, as guests. This dinner was attended by more than 200. A special feature of the evening's program was a pageant given by the pupils of the Adams School, participated in by more than 70 children, the theme being "Average Town", illustrating the rejuvenating power of play, sunshine, cleanliness and hygiene. The children had been drilled by the teachers of the Adams School and gave a highly enjoyable presentation.

Miss Louise G. Freeland, chairman of the Preventorium Committee of the Federated Women's Clubs of Arizona, gave a very interesting report on the work of last year and a stirring appeal for an enlargement of this work during the coming season.

Mr. T. C. Cuvellier, executive secretary of the Association, reported on the work of the past year, and announced that Mr. J. E. Thompson of Phoenix had accepted the presidency for the coming year.

A surprise feature was the presentation of the poem, "Hygeia", of the American Medical Association, by Mrs. Harry T. Southworth of Prescott, this being rendered in a very excellent manner.

The program of this evening closed with a lecture by Mr. Dwight B. Heard of Phoenix, on "Following the Trail of Columbus", giving an account of the interesting and historical places visited on the tour of newspaper men recently held by the United States Navy. This was freely illustrated by lantern slides from pho-



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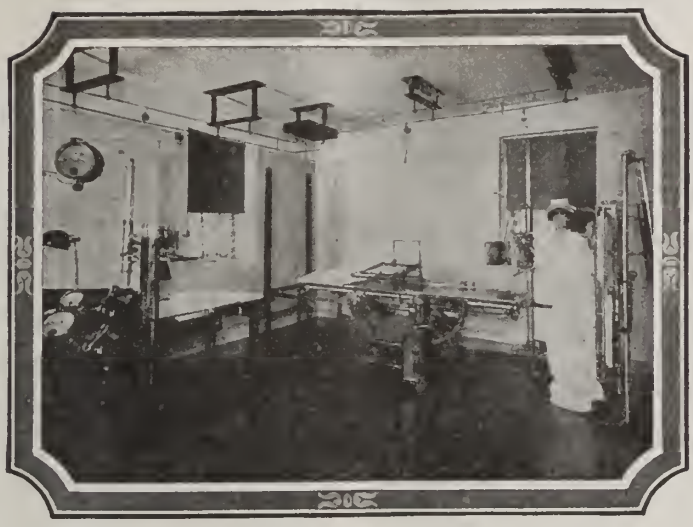
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tographs made by Mr. Heard on this trip.

The visiting ladies were entertained at lunch and afternoon dance, at the Country Club, on Friday, this function being in charge of a committee of doctors' wives of Phoenix.

On Friday evening, the annual banquet was held at the Adams Hotel, with Dr. D. F. Harbridge acting as toastmaster. The chief feature of this occasion was the annual address by the president, Dr. C. A. Thomas of Tucson. This address will be found in this issue of SOUTHWESTERN MEDICINE. Toasts were responded to by Drs. F. T. Wright of Douglas, J. F. Percy of Los Angeles, Dr. R. D. Kennedy of Globe, Dr. H. R. Carson of Phoenix and Dr. Win Wylie of Phoenix.

Following the dinner and toasts, the remainder of the evening was given over to dancing and social diversion.

Visitors at the meeting included Dr. J. F. Percy of Los Angeles, Dr. Roy Thomas of Los Angeles, Dr. Rea Smith of Los Angeles, Dr. Bertnard Smith of Los Angeles, Dr. E. Avery Newton of Los Angeles.

On Saturday the Association went to the Ingleside Inn for luncheon, there being about 100 present at this occasion. A very excellent and characteristic Arizona lunch was served, the fruits and vegetables coming from the orchards and gardens of this resort.

A resume of the papers presented at the meeting will not be attempted here, as they will practically all appear in this journal in due course.

At the business meeting on Saturday afternoon the following officers were elected:

President-elect—Dr. R. D. Kennedy, Globe.

First Vice-President—Dr. George A. Bridge of Bisbee.

Second Vice-President—Dr. J. J. McLoone of Phoenix.

Third Vice-President—Dr. A. D. Wilson of Prescott.

Secretary—Dr. D. F. Harbridge of Phoenix.

Treasurer—Dr. C. E. Yount, Prescott.

Councillor of the Southern District Dr. Robert Ferguson, Bisbee.

Member of Medical Defense Committee—Dr. F. T. Wright of Douglas.

Delegate to the A. M. A.—Dr. W. Warner Watkins of Phoenix.

Alternate—Dr. Jeremiah Metzger of Tucson.

Board of Managers of Southwestern Medicine—Drs. D. F. Harbridge of Phoenix and C. E. Yount of Prescott.

Bisbee extended an invitation for the 1925 meeting and it was voted unanimously to accept this.

Personals

DR. E. W. PHILLIPS, resident physician at St. Luke's Home, Phoenix, and secretary of the Maricopa County Medical Society, is convalescing from a major abdominal operation performed the latter part of April, for the relief of old intestinal adhesions.

DR. LEON JACOBS of Yuma, Ariz., secretary of the Yuma County Medical Society, was recently seriously wounded by being shot through the shoulder. The actual circumstances of the injury and the cause of the assault have not been ascertained.

DR. G. R. LOCKETT of Carthage, N. M., is reported as being seriously ill, and likely to be forced to retire from practice.

DR. MARY L. NEFF of Phoenix is leaving June 1st for Los Angeles, where she will be located until September, with office at the Hotel Trinity, where she will practice her specialty.

DR. ROBERT W. CRAIG of Phoenix is planning to spend the summer in Europe. He recently sold his home in Phoenix to some eastern capitalist.

DR. CHARLES W. SULT of Phoenix announces his removal from 16 East Monroe street to the new Luhrs Building, of the same city.

DR. GEORGE H. WOODALL of Phoenix is rebuilding the Phoenix Sanitarium along very modern lines, at an investment of about $30,000. Further details of the building arrangement will be given next month.

DR. JOHN W. FLINN of Prescott left several weeks ago for eastern points, including the National Tuberculosis Association in Atlanta, meeting this month. He will be absent three or four months.

DR. C. C. TOLLESON of Oatman, Ariz., is leaving that place, to be located in southern California, probably Long Beach. Dr. Vernon Rood is now located at Oatman.

What is S. M. A.?

S. M. A. is an adaptation to breast milk which resembles breast milk both physically and chemically.

S. M. A. in addition to giving excellent nutritional results in most cases, also prevents nutritional disturbances such as rickets and spasmophilia.

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SOUTHWESTERN MEDICINE

VOLUME VIII JUNE, 1924 No. 6

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents—See Advertising Section Page 1

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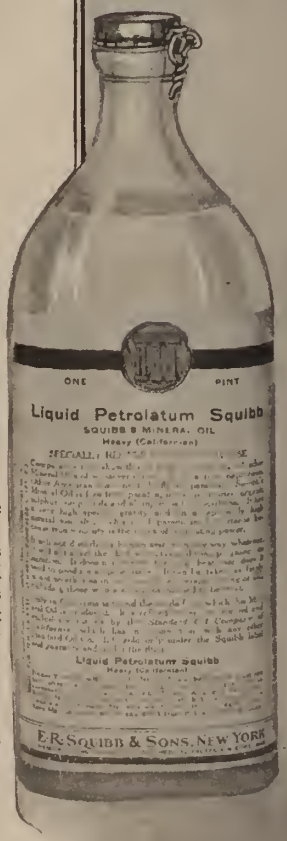
The paraffin oils are relatively light and of low viscosity. Their lubricating value, low at all times, becomes particularly objectionable when the temperature is raised to that of the interior of the body.

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CONTENTS

ORIGINAL ARTICLES

EXAMINTION OF THE PATIENT 253
T. E. Scott, Major, M. C., U. S. A., Ft. Bliss, Texas.

SYMPOSIUM ON TUBERCULOSIS
(Before the El Paso County Medical Society)

DIAGNOSIS OF TUBERCULOSIS 261
C. M. Hendricks, M. D., El Paso.
THE VALUE OF THE X-RAY IN THE DIAGNOSIS OF TUBERCULOSIS 263
J. W. Laws, M. D., El Paso.
LABORATORY DIAGNOSIS IN PULMONARY TUBERCULOSIS 265
George Turner, M. D., El Paso.
"CURES" IN TUBERCULOSIS 266
F. A. Duncan, M. D., El Paso.
TUBERCULIN AND AUTOGENOUS VACCINES 269
R. B. Homan, M. D., El Paso.
ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS 271
E. D. Price, M. D., El Paso.
CLIMATE IN TUBERCULOSIS 273
Orville Egbert, M. D., El Paso.
SURGERY IN PULMONARY TUBERCULOSIS 275
W. L. Brown, M. D., El Paso.
CASE REPORTS 277
G. Werley, M. D., El Paso.
CERTAIN NECESSARY FUNDAMENTALS UNDERLYING THE DIAGNOSIS AND TREATMENT OF TUBERCULOSIS 281
Fred G. Holmes, M. D., Phoenix, Ariz.

EDITORIAL

THE ARIZONA INDUSTRIAL CONGRESS (P. G. Spilsbury) 286
DR. LEON JACOBS 287
PREPARATION OF MEDICAL PAPERS—YAVAPAI COUNTY MEDICAL SOCIETY 288
ST. JOSEPH'S HOSPITAL STAFF MEETING (Phoenix) 290
ARIZONA STATE MEDICAL ASSOCIATION MINUTES 296
BOOK REVIEWS 298
ABSTRACTS 302

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(Meets)

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GILA COUNTY MEDICAL SOCIETY

(Meets)

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(Meets)

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Secretary, Dr. C. E. Yount, Prescott.

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EXAMINATION OF THE PATIENT*

(Reprinted from The Military Surgeon for July, 1923)

MAJOR T. E. SCOTT, Medical Corps, United States Army

The subject matter presented here may seem very trite. Its importance, however, is so essential that constant reiteration is not amiss. Fully 95 per cent of all human ills can be diagnosed and properly treated by our ordinary clinical senses and with no more technical appliances than a stethoscope and a fever thermometer. It is not my intention to decry the use of such valuable aids as the clinical laboratory, x-rays, diagnostic tubes and other such appliances. They have their proper sphere in aiding the clinician, but it is extremely rare indeed that they can do more than offer confirmatory help. Pulmonary tuberculosis so frequently diagnosed by the x-ray is not possible of diagnosis by such until changes have taken place in the lungs sufficient to obstruct rays. In other words, the x-ray shows results of rather long-standing trouble. A careful history with physical findings will usually establish a fairly correct diagnosis months before there are x-ray changes or positive sputum. In chronic gastrointestinal diseases the x-ray evidence is so late in establishing itself as to be of comparatively slgiht value in the incipiency of disease. In the frank, well-established ulcer it will give valuable diagnostic help in an extremely high per cent of cases, but unless the symptoms and history are in accord we are never quite certain even then. In carcinoma, by the time filling defects are present the tumor has reached a hopeless stage with a train of symptoms dating back a year or more. Even in x-ray work the roentgenologist must know the entire history and clinical findings to be able to give his best interpretations on findings so often extremely indefinite. It is necessary, therefore, to use every means at our command, but for the present at least a careful history with thorough examination must remain our chief dependence for early diagnosis and treatment. The execptions will form less than 5 per cent. Take a case of typhoid fever now in the hospital, for example. The patient was entering the third week of the disease before bacteriological proof of its existence could be given. He was properly diagnosed clinically after a fifteen-minute examination, and treatment instituted at once.

During my early career as a physician my practice was in the lowlands of Mississippi where malaria was the chief ailment. I had a microscope and adopted modern methods, but depended entirely on the blood findings to diagnose malaria, and lost many cases by reason of

***Read before joint meeting of the El Paso County Medical Society and the medical officers of the El Paso District, March 11, 1923. Republished by permission of The Military Surgeon, where article was published in July, 1923.**

such. The good old country doctors who never owned or used a microscope would make a proper diagnosis, start treatment and be at home while I fussed over my stains. It was there I learned that the plasmodium is not always found in perfectly frank malaria, also that one had to diagnose and treat these severe pernicious forms at once or lose the patient.

The time taken to record a complete history and examine a case properly is not very great if a definite routine is followed. Such routine has the advantage of giving a complete survey of the patient and often discovers disease far remote from the one complained of, as is so frequently shown in active tuberculosis cases who also have active gonorrhea. I find myself frequently embarrassed by just such situations because of being in too big a hurry to properly examine the patient. In one instance I recommended for transfer to Hot Springs, Ark., a case of supposed rheumatism of the right shoulder joint, which was actually an amebic abscess of the liver. A few such instances as this will convince us of the necessity for a careful routine, religiously adhered to in every single case, regardless of its nature. I would like to make the assertion, without fear of successful contradiction, that failure to diagnose a case is almost always due to neglect in carrying out an orderly routine and spending insufficient time with the patient rather than to inferior ability on the part of the examiner. Hard work, coupled with common sense and an average knowledge of medicine, is the keynote of diagnostic success.

One should take notes on every case he treats. It will make him study his cases more carefully and also furnishes a comparative study of disease not obtainable from books. Read the story of Sir James MacKenzie if you feel that your time is too precious to do this. While doing a busy general practice in a country community he found time to record an accurate history, physical examination, and the results of treatment in almost every case. He furthermore obtained, in permanent form, polygraphic tracings of every case showing any heart disturbance and thousands of normals. Today he is one of the leading authorities on heart disease. There is, therefore, no end to our accomplishment if we would only utilize the time we have at hand each day.

There are often situations, it is true, when we must handle cases very expeditiously—quantity production as it were—as in the case of epidemics, the daily sick call, and in special surveys of troops. I will try, however, to show later how this may be done without completely sacrificing an orderly routine calculated to reduce our mistakes to the minimum. The following outline of history and physical examination is especially suited to hospital cases, but can be moulded to fit any situation if it is fixed in your mind well enough to become usable. I would suggest that, whatever routine one adopts, he should write it down first and follow such outline until its steps become automatic. By so doing, it is not long until one can go through every essential detail in a very short time indeed—about twenty to thirty minutes for hospital purposes and proportionately shorter or longer as the situation demands. Very frequently it becomes necessary to enlarge on some special examination such as the chest, when you discover some sign or symptom indicating possible tuberculosis. This will, of course, require time to do thoroughly. A mental examination alone requires much time to record every factor entering into a diagnosis of mental disease. It is not intended, therefore, to carry you afield into every specialty, even if I were capable, but to present a method of classification and diagnosis of the vast majority of diseases and to lead you in the proper direction for more thorough study of the others. It is manifestly impracticable, even in the best hospitals, to carry a patient through every possible examination and study. Obviously one would not make pyelograms, do spinal punctures, or take gastrointes-

tinal x-ray series, as a routine measure. There should be some definite indication for such in each case, shown by your routine examination. It therefore becomes a big factor in ruling out and excluding those things not required to be done. The habit of ordering every conceivable special procedure on a patient, just to be sure "nothing is overlooked," is a lazy man's method of seeming industry, serves no good purpose, and should be condemned. A physician should be prepared to show the necessity for each procedure he recommends.

It so happens that in our work in the army we must adopt methods calculated to handle large bodies of men in short periods and frequently are compelled to consider averages. For example, take the method of examination for tuberculosis adopted in the army during the war. The actual time necessary to completely examine a tuberculosis patient under hospital conditions and to record the findings will average something like twenty to forty minutes, yet Colonel Bushnell and Major Bruns developed a rapid method whereby they could examine troops in line in three minutes and established the high efficiency of about 97 per cent of correct diagnoses as to the existence or non-existence of the disease. All cases taken out of line by such method were later gone over more carefully and the diagnosis confirmed. Certainly they must have failed to discover many cases, but the per cent was very low. They have adopted what seemed the best method of securing the highest average of correct diagnoses in a difficut situation, and the result of their work alone stands out as a remarkable achievement in medical history.

The "sick call," requiring, as it does, quick decisions with slight information, will demand some system of sorting the sick from the well. It is not a place for complete diagnosis and treatment except for trivial cases, yet the number of correct diagnoses made is often very high. If the patients' temperatures are taken before they reach the doctor (i. e., by an orderly or sergeant) and each one is partly or wholly undressed, I believe that the average medical officer can dispose of his cases in two or three minutes average time. Many cases, such as injuries, will be obvious and require only an instant to stand aside; others require more. A short history showing the complaint and immediate cause, with a quick examination of the throat, lungs, heart and abdomen, can be made in five minutes. When the patient is found to have something requiring further study, this can be made immediately after sick call or at some other suitable time. Those going to hospital can be looked over more thoroughly after the line has gone through and rarely require more than a few minutes in which to make a tentative diagnosis. An extremely large number of cases do not actually need to go on sick report, yet receive frequent treatments. These cases present chances for thorough and complete study by the regimental surgeon, when he can go over them more at leisure. In other words, here, as elsewhere, one must adapt himself to the situation, attempting to attain the highest average, and doing the most complete work possible under the circumstances.

It is not intended that this outline shall be considered as hide-bound in the least. Only salient points can be mentioned to indicate a method of procedure. No outline can be applied literally to all cases and as a general proposition printed history forms are bad.

HISTORY

Name. Age. Martial State. Length of Service, etc., on 55-A.

Occupation:

(1) Laborer, gives a clue to mental equipment, physical endurance, exposure.

(2) Clerk, may reveal effort syndrome or other developmental physical defect. (The law of selective employment applies).

(3) Farmer-boy, probably has not

had all the acute infectious diseases. More likely to be sufferer of hookworm, malaria and dysenteries. Not versed in the serious possibilities of venereal disease.

(4) Cavalry soldier, often asthmatic and anaphylactic to horse serum requiring caution in giving antitoxins.

(5) It is well to inquire into all former occupations and pay particular attention to painters, lead workers, miners, wind instrument blowers, glass blowers, and to any occupation recognized as having a definite bearing or connection with disease. To state occupation as "a soldier" does not aid materially and is incomplete.

Tropical Service (Residence).— This should show a brief of all residence, before and after entering the army. Malarious districts, Mexican border service (amebic infections, typhus and Malta fever).

Habits. — Should include other things than alcohol, such as hours of work, eating and sleeping, tobacco, constipation, mode of dress, personal hygiene or any habit which might give a clue to his ailment.

Family History.—There is no "negative" family history. Every man has a mother and father and a statement as to their ages and condition of health is essential. Brothers and sisters must each be described, condition of health, or cause of death in each. If there are many deaths in the family, careful effort should be made to find the cause. Do not take the man's diagnosis without satisfying yourself of its probable accuracy. The condition of the wife's health, miscarriages and health of children—all are very essential. Inquire especially as to his home conditions if married and the kind of home life during his childhood. These bear directly on whether or not he lives a sanitary and wholesome life. Give special attention to chronic diseases such as diabetes, cancer, tuberculosis, blood diseases.

Previous Personal History. — Not only refers to past diseases but past life. Question carefully regarding all the usual diseases, such as typhoid, pneumonia, influenza, measules, malaria, diphtheria, rheumatism, tonsilitis, acute colds, cramps, vomiting attacks, dysentery, small pox, scarlet fever, pertussis and influenza and in each case satisfy yourself that each one claimed is properly diagnosed. For example, rheumatism may have been simply fleeting pains, malaria may have been guessed at. Repeated "influenza" may be repeated manifestations of an early tuberculosis and improperly called "Flu." It is rare indeed that one cannot secure previous history which will throw light on the present condition. If the patient claims that he was never sick before, make him describe everything he has done, all his various jobs, what medicine he has taken, how regularly he has attended school, work, etc., and you will frequently uncover some pertinent facts.

Gunshot Wounds and Other Casualties.—Here describe all surgical operations and injuries, and enlarge on anything not fully described above. If there has been an appendectomy, find out how many attacks prior to operation, and how long sick. Cholecystectomy points to serious metabolic disturbances, which demand information as to the state of health before and after such operation. Removal of the gall bladder with stones does not necessarily cure the condition originally causing the stones.

Venereal History.—Question carefully as to eruptions, sore on penis, urethral discharge and satisfy yourself of the existence or non-existence of such. Do not write "negative."

Present Complaints (Condition on admission sheet). — Ascertain here each and every complaint of the patient and set them down in numerical order, such as: vomiting, loss of appetite, loss of weight, headache, pain in abdomen, bloody urine, etc. Question him carefully to obtain those he has overlooked or perhaps has not considered of consequence. For example, the patient may be weak, dizzy, dyspneic, and extremely anemic and yet not mention a slight sore-

ness of the tongue which is possibly the most pathognomonic symptom of pernicious anemia. Try to elicit the outstanding features only at this point without too much loss of time. Thorough discussion of each complaint should be made in describing onset and course.

Onset and Course.—First, give a short description of the length and general course of the disease and then take up each complaint in order, describing its origin, duration, character, severity, time of occurrence, relation to food, rest and exercise. For example: pain in abdomen should be located, its severity and duration as well as relation to meals, work, rest, and taking of soda, ascertained. Is it associated with nausea, followed by vomiting or relieved by such? This part of your history will form the main body of the narrative and if well-taken often presents a readable treatise of the condition. There are frequently developed facts unrelated to the actual condition, but their insertion is called for and sometimes serve as leads in obscure ailments. A multiplicity of irrelevant complaints and a voluminous enlargement in describing the onset and course, particularly when much of it fails of orderly analysis, speaks for mental or nervous phenomena instead of actual physical pathology. Skillful questioning often aids in bringing out facts not previously apparent to the patient and helps you build the structure. To do this one must have in mind the various possibilities in the case and quiz accordingly.

Inventory. — At the end of each history an inventory should be made according to the various symptoms, such as:

Nervous system: no dizziness, no fainting spells, no headaches.

Gastrointestinal system: no vomiting, pain in stomach after eating, no diarrhea, etc.

Cardio-vascular system: palpitation, swelling of feet.

Respiratory system: dyspnea, cough, bloody sputum.

Genito-urinary system: nocturia.

Mentioning all positive findings and calling attention to the non-existence of other usual findings, so as to aid in differential diagnosis. At this point you will usually find it necessary to go back and question more closely to ascertain whether or not he has a certain symptom, which you think he should or should not have. It is here that you take a stock of your patient and make an effort to round out the picture. It will show how careful you have been in your history taking. It furthermore serves as a ready reference to your conclusions at this point. In probably 90 per cent of your cases you will have formulated a fairly correct diagnosis at this point which further work will prove or disprove.

The Physical Examination. — You cannot examine a patient thoroughly unless you have proper equipment and have your patient in a comparatively quiet place away from disturbing interruptions. Each physician should have his own stethoscope, of the best make. The ear pieces should fit snugly but not hurt the ear. A small pocket flashlight, a percussion hammer, skin pencil and blood pressure instrument are essential. I furthermore feel that every physician who waits on the sick in hospital should wear a gown. There are several good reasons for this. It protects his clothes and is a means of causing him to examine the patient more carefully. You cannot possibly examine and treat a sick man without coming into close personal contact with him, and you owe it to other patients and to your family not to become a direct carrier of diseases. The appearance of physicians in clean white gowns has a beneficial effect on patients, personnel, and visitors.

I. General Description of the Patient.—Note general appearance; is he acutely ill, dull, bright, in apparent pain or distress? What is his apparent age? Is he ambulant, or in bed, quiet or restless? Does he reply intelligently and freely to questions? Is he stupid, ignorant and indifferent? Try to obtain a good estimate

of what you see, noting especially obvious abnormalities; such as, cyanosis, distressing dyspnea, flushed features, puffy eyes, icterus, pallor. In fact practice the art of taking in at a glance every unusual feature.

Now start with the head and proceed in an orderly routine manner to examnie every portion and system of your patient.

Head: note any abnormalities. Examine scalp and face, note facial tremors.

Eyes: mention whether or not sclera is clear, yellow, red, or in any way abnormal. Pupils: reaction to strong light. Mucous membrane: red or pale.

Mouth: condition of mucous membrane, teeth, gums, tongue, throat, and tonsils. Note steadiness and condition of the tongue.

Nose: discharging, pinched, deformed, blue, red, breathing passages open?

Ears: discharging, clean canals, tophi, eczema, tenderness over mastoids?

Neck: adenopathy, thyroid gland, venous pulsation, condition of sternomastoid muscles.

Chest (Lungs): shape, size, expansion, supra-clavicular retraction, prominent ribs, bulging interspaces, Litten's sign. Palpation: not of very much value except where marked conditions present. Percussion: compare notes on both sides, covering whole chest, percussing lightly. Auscultation: breath sounds, whispered voice, moist rales, rhonchi, rubs, clicks, sternal sounds, marginal sounds, describe accurately the physical signs and do not say "normal."

Heart: locate apex beat by inspection and palpation (never overlook this). Percuss out left border, right border, and aortic width, and state the measurements in c.m. in every case. Palpate for thrills at apex and base. Listen carefully for first and second sounds and note sharpness, reduplication, extra systoles and rhythm. State whether or not there are murmurs and if present the kind, i. e., systolic or diastolic.

Do not say "mitral murmur" or "aortic murmur." If diastolic, are they late, early, or mid-diastolic? Describe character and area of transmission. Listen with patient in prone as well as standing position, also with breath held in forced inspiration and expiration. Murmurs due to mitral valve lesions are heard best in prone position, aortic in standing. Note especially the aortic and pulmonic second sounds. Are they sharp? Which is sharper? Count the heart rate and set it down to compare later with the pulse rate. The blood pressure should be taken in every case and recorded, using stethoscopic method. Note whether pulse pressure is large or small.

Pulse.—Give rate, rhythm, force, character, comparing both wrists. Look for Corrigan's pulse and capillary pulsations in all suspected aortic lesions. Compare rate with that at apex and not deficit. If there seems to be missed beats compare with the waves in jugular veins with patient lying down.

Abdomen. — Describe general appearance, bulging, eruptions, or retractions. Palpate carefully, going over every portion, feeling for the spleen, liver, masses, tenderness, and note each. Light palpation is the only kind which will reveal delicate changes. The abdomen should be percussed, outlining the stomach, confirming the liver and spleen borders, and locating fluids. It is remarkable how much valuable information one can get from physical examination of the abdomen with nothing but his bare hands, coupled with a carefully taken history. I believe it will reveal more information than all laboratory aids combined. The presence of old scars should be noted and recorded and further information as to their causes obtained. The patient should be examined both lying down and standing to note displacement of masses, liver, spleen, kidneys, and pendulous condition of viscera in general.

Genitalia and Anus.—These subjects should have a separate heading

and one should mention presence or absence of adenopathy, scars on penis, hernia, signs of active disease and abnormalities of any kind. Eruptions and cleanliness should be noted. The anus should be inspected for ulcers, abrasions, hemorrhoids, signs of irritation from acid evacuations and cleanliness.

Extremities.—These should all be gone over noting eruptions, deformities, clubbed fingers, size and condition of joints, varicose veins, scars from old ulcers, sweating, etc.

Neurological.—Reflexes: start with the plantar, then take ankle, knee, cremasterics, abdominals and deep arm reflexes. If these are normally brisk the nervous system will usually be intact. Station and gait should be described in ambulant cases.

A description of any special condition, as a generalized eruption, may now be given and ordinarily should complete the average routine examination.

Mental.—The mere performance of the above examinations will usually indicate the presence or absence of any mental disorder. Loss of light reflexes, disturbed knee jerks, and scanning speech with facial tremors suggest paresis. Rhombergism is not positive just because there is swaying. There are few people who do not sway slightly with the eyes closed. Should there be suspicious signs of incoordination other tests should be tried to confirm this. Facial tremors with or without a washing out of the normal wrinkles and lines demand careful investigation. A history showing multiplicity of irrelevant complaints and exaggerated reflexes point to a neurosis. Those who develop queer mannerisms, are stupid, indolent, inattentive, and otherwise abnormal during the examination direct you into the proper channels for further study.

Record all findings clearly and in simple language. Do not try to use brilliant and little known terms. Never describe a sign or symptom by some man's name if you can avoid it. If the knee jerks are absent, say so, and not that Westphal's sign is positive. It is better understood. It so happens occasionally that some conditions may be beter destcribed by a name like "Romberg's," which is so universally known, but a description of the kind and amount of swaying present serves to add clearness even here. Do not say Graves' disease or Basedow's disease for exophthalmic goiter. There are, I think, a few exceptions to this rule; example: Addison's disease has no other very good name.

When a good history has been written and a thorough physical examination made a diagnosis is practically always apparent. It will be found that most laboratory and special examinations afterwards are confirmatory only. Furthermore, one can more intelligently request the kind of examination which will aid in clearing the diagnosis.

One should make a practice of putting down a tentative diagnosis as soon as the history and examination are completed and immediately below this make a note of the special examinations, such as x-rays, laboratory and consultations, considered necessary to aid him in completing the case. It is good practice, and a failure to make a correct diagnosis will often be of great value in directing his judgment for future work.

Laboratory and Special Study.—It is the nature of things in army work that we must secure many routine laboratory examinations which are not actually called for by the nature of the case. Routine Wassermanns have done more than any other thing in controlling the morbidity from syphilis. Routine urines and blood counts are universal for all hospitals. Routine venereal inspectins, routine sanitary inspections and even routine visits by the Inspector General's Department, all have a valuable place in the prevention of disease and putting our medical practice on the highest possible basis. We are, therefore, not doctors solely in the sense of the average civil practitioner, but are, to a degree, specialists in preventive

medicine as well. There is, however, a reasonable and happy medium, which we can determine by a careful study of each case, in determining the things necessary to ask for from the laboratory, x-ray, and other aids. I believe we should practice doing everything possible to clear up our case clinically before asking someone else to aid us. If we are located where the endameba are present, it is certainly wise to secure stool examinations in all cases remaining in the hospital long enough.

A case coming to hospital and showing albumen and casts in the urine without obvious cause to indicate its secondary nature should ordinarily require the following additional study: day and night output of urine, a 2-hour specific gravity test, and a phenolsulphonephthalein excretion. These are simply and easily done and if normal, often end the case at this point. If not, blood chemistry may be asked to show nitrogen and salt retention, and if further study is indicated the output of these articles in the urine, after a measured diet, may be ascertained. This work, however, is highly technical and requires much labor. Consequently they should be asked for only when positively indicated. They are not essential to the diagnosis of nephritis. In pregnancy frequent estimations of the twenty-four-hour output of urea in grams is essential to proper management.

In gastrointestinal cases when we develop a fairly consistent history, showing pain after eating, relieved by foods or soda and with tenderness sharply localized over a point near to the upper and right side of umbilicus we should put the patient on a meat-free diet and after three days have the stools examined for occult blood. This is one of the most significant signs in peptic ulcer. Our next step is to do a careful clinical gastric analysis asking for the content of total acid, free HCl and combined HCl in each tube, also the presence of lactic acid, blood, mucus and ferments. The diagnostic tube will furnish valuable information other than that secured by chemistry and which we must note ourselves. It will show large gastric retention, free blood, mucus, undigested food from the night sandwich, particles of tissue, the ease or difficulty of swallowing the tube, and many little points regarding the temperament of our patient, all of which aid in diagnosis. The presence of large quantities of gas in the stomach and a history of passing gas by bowel point more to disease of the gall bladder than duodenum or stomach. X-rays of the gastrointestinal tract should never be done until the case has been thoroughly studied by every reasonable means to establish a diagnosis. If the case is worked up in this way so that the clinician and roentgenologist both have a definite object in view, the likelihood of a correct finding is much improved and much needless delay and expense will be saved. If we will only recall how indefinite and inclusive the x-ray evidence is at times and how dependent it is upon the total clinical picture for accurate interpretation, it will aid all concerned. The habit of sending poorly studied cases to the x-ray is inexcusable and should be condemned.

Consultations with other officers should be freely sought in all cases where there is any question of doubt. I sometimes think that we do too much of it. We are all doctors and can all examine chests, abdomens, etc., and if by doing so we discover some condition not understood, then help should be sought. It may be wise sometimes, however, to call in someone even when the condition is understood, for the purpose of moral or other support or to satisfy the patient and protect the medical department. We are all striving to accomplish the same thing—that of handling and treating the sick, and the more team work developed the greater the collective and individual success.

Finally, let me state that no one can lay down inflexible rules or formulae which will tell you how to di-

agnose and treat disease. It is said that the mark of a good bridge player is to know when to break the rule, and I believe such applies here as well. Just remember that no amount of didactic teaching or study will tell you how to recognize accurately an enlarged spleen or liver, or the difference between systolic and diastolic murmurs. You must seek this information by first hand study. One of Forcheimer's favorite expressions was that "the spleen is not going to tell you it is enlarged and tender." We must put our hands on the patient to determine this fact, and, furthermore, we must constantly feel normal abdomens if the abnormal is to be recognized. The same principle applies to hearts, lungs, ears and throats. Look at them, feel of them, and listen to them constantly in an effort to recognize expressions of actual disease. Keep in mind normal functions and recognize that if a heart or other organ is performing that normal function it is not sick, regardless of its size, shape, or previous condition of servitude. Learn the difference between abnormal signs that do not mean disease and those that do. Follow your case as long as you can and learn the final outcome, comparing this with your first opinions. In this way only can we really learn medicine.

DIAGNOSIS OF TUBERCULOSIS*

C. M. HENDRICKS, M. D., El Paso, Texas

After nineteen years devoted exclusively to the study of tuberculosis, I have come to several definite conclusions; among them is that the most important thing is diagnosis, early diagnosis, and the control and prevention of tuberculosis absolutely depends upon it. However, the mere early diagnosis is comparatively valueless unless intelligent treatment is insisted upon at the time of diagnosis.

All of us here have a greater knowledge of tuberculosis than in many other cities, and a great many things I might say would be superfluous. I think it important that I should emphasize the fact that if we are to control and make general progress in the reduction of mortality of tuberculosis, we must concentrate on the general practitioner and the pediatricians. There are several important facts which they must have constantly in mind. They should be made to understand that tuberculosis is a curable disease in its early stages. They must be made to understand that infection takes place in childhood; that practically all persons are infected before they attain the age of 15 years; that the disease in later life is probably in most instances an extension from early infection; that infection does not mean a clinical disease; that there can be no clinical tuberculosis without one or more symptoms; that it is not necessary to find tubercle bacilli in the sputum; that it is not necessary to find rales in the chest; that a family and personal history is the most important adjunct in making an early diagnosis. I will not go over the details of a personal history, but there are a few things I would like to say about the pitfalls concerning our diagnosis of tuberculosis. Our stethoscope is a valuable adjunct, but quite often leads us to trouble in certain types of cases. In early life, as you know, a primary lung focus gives rise to secondary infection of glands, and from these the lung is again infected in a case where the disease is infectious. Nearly always immunity has by this time reached a high level, the lung infection is a slight one and life is in no way threatened. Here and there we find a case where from early age or other reason immunity fails and disease spreads outwards, showing itself in the x-ray picture first as mottling

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round both roots, later involving a larger and larger portion of the lung, till in late stages, it appears to reach out to the periphery. This is the condition, whether slight or serious, which we speak of as hilus tuberculosis. However the spread is accomplished, it has begun deep in the lung and has only at a late stage reached the periphery over which our stethoscope can come in contact.

A child may be found with symptoms suggestive of tuberculosis. What does one find on physical examination? Careful examination in practically all cases will show a paravertebral dullness disposed as a semicircular area against the spine. We also find an increased parasternal dullness, blowing breath sounds over the upper vertebral spines, and various other signs; but what you do not find except in the advanced stage of the disease is crepitant rales. Indeed, the stethoscope may tell you nothing at all in such a case. Do not therefore say there is no disease of the lung because rales are not present. From a good history and from a physical examination and from the x-ray picture, you can with confidence in most cases say such a child has hilus tuberculosis. You cannot say from physical signs whether the disease is latent or active or whether both lungs are filled with active bronchopneumonic tubercles. The visible signs are the same in all these instances and the diagnosis has to be deduced from the symptoms, the amount of illness and the x-ray picture. The x-ray in the tuberculosis of childhood is very important. In infancy and up to the age of five years, the lung picture is pretty clean in a healthy child and a superadded tuberculosis or bronchopneumonia is very clear and apparent. However, the x-ray picture of a child of school age, from nine years upward, may be greatly shadowed with past sins in the shape of silicosis, or of healed tubercles and other chest infections and it requires a lot of experience to interpret correctly. In a slight infection with activity, the x-ray is of little value; fortunately in the more serious cases with extensive activity, the x-ray is of greater value than in the diagnosis of childhood.

In speaking of hilus tuberculosis, it is necessary to consider an adult who may also develop a deep-seated or hilus tuberculosis. For the patient's sake, it is important that he cough, otherwise his chances of recognition are small. These cases cough very little in the early stages and when they do, they take small heed of it. The main symptoms in such cases are those of neurasthenia; it is a neurasthenia, but of toxic origin, and many of these cases have been treated for many months and even years for neurasthenia at the outset. Once such a case is labeled neurasthenia, his chance for a correct diagnosis has been postponed indefinitely and quite often the general practitioner and the neurologist have been surprised to learn that some of their favorite neurastheniac cases died of pulmonary tuberculosis. Thus neurasthenia as an early sign of tuberculosis is even more recognized by the neurologist than by the general practitioner.

During the World War, I was called numbers of times by the neurologist and the psychiatrist to exclude tuberculous infection in cases that were sent to them for treatment for neurasthenia. How can the general practitioner and all the rest of us, for that matter, establish from diagnosis deep-seated or hilus tuberculosis simulating other conditions? First, and especially, by recognizing its possibilities, and by using all means to exclude or confirm it; a careful history, a temperature chart, x-ray picture, and a search for physical signs we know should be present in such cases. In the adult, the almost always present sign is Kronig's resonance. It is a fact that a lung may be full of deep-seated tuberculosis without giving any sign of this at the surface. Understand and recognize the fact that your stethoscope may be useless in such cases.

There is another condition in which the misuse of the stethoscope is com-

mon. I speak here of latent cases of pulmonary tuberculosis that have been healed and well for years and come up occasionally for physical examination; we find latent rales and we are convinced or come to the conclusion that this patient has active tuberculosis again. I have learned from experience that quite often this is in error and that hundreds of arrested cases of tuberculosis are going about their daily duties who have these crepitations present and who will continue to have them throughout life. A hemorrhage is not always an indication of the return to activity of the disease. Neither is an occasional rise of temperature. These febrile attacks are due, no doubt, to secondary infection and are most often periodic. So, therefore, it is plain to my mind that the stethoscope may reveal nothing in a far advanced deep-seated tuberculosis on one hand, and reveal rales in an arrested case in the other.

THE VALUE OF X-RAY IN THE DIAGNOSIS OF PULMONARY TUBERCULOSIS*

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The x-ray is a very valuable aid in conjunction with physical examination in the diagnosis of pulmonary tuberculosis. Fluoroscopic examination and stereoscopic films or plates should be made. A careful written history should first be made, then the findings of physical examination should be written into the history, then there should be added the written laboratory and x-ray findings, and finally after correlation of all the data obtainable, a conclusion can be drawn that will be as accurate as it is possible to make. Physical examination of the chest is incomplete without the information obtainable from x-ray study.

Until the general practitioner of medicine can detect the physical signs of tuberculosis with a greater degree of confidence than is done at the present it is the writer's opinion that the report of the competent roentgenologist will be an important deciding factor in the diagnosis of pulmonary tuberculosis. The fact is that the findings of an expert roentgenologist of experience and judgment will check vey closely with the findings of an expert on physical diagnosis, who has experience and judgment. The x-ray often reveals more accurate evidence of pathology than physical examination, nevertheless physical examination including history and subjective symptoms, will give a more accurate interpretation of the pathology shown by x-ray. Fraser and Macrae (a) state the question in hand rather succintly as follows: "(1) The x-ray is a procedure of inestimable value in tuberculosis. (2) In many cases, perhaps most cases, the other older methods will establish the diagnosis. (3) By the x-ray, one obtains a more complete clinical picture which justifies the extra expense. (4) Radiographs frequently disclose conditions not discoverable by other means. (5) The x-ray usually shows more pathology than would have been expected from the physical examination. (6) The information from radiographs should simply supplement the physical examination. (7) The x-ray will not, therefore, supplant the older methods. The roentgenologist should go as far as he can in describing his findings; he should make as much of a diagnosis and as much of a prognosis as he can, entirely from the x-ray findings. He should then consult with the clinician, and in conference make such changes in the final conclusions as may be indicated by the joint findings."

What x-ray films of the lungs may be expected to show is very well summed up by Granger (b) as fol-

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lows: "Normal lung tissue can be accurately revealed by the x-ray film, but the radiologist must be familiar with normal lung markings and with the characteristic density of the normay lung tissue."

Excluding acute pneumonic infections, tuberculosis is the most common lesion and it must be excluded before any other diagnosis can be submitted. The earliest recognizable lesion of adult tuberculosis is the Dunham fan, usually found in the apical region along the first or second interspace branches. It is formed when the inflammatory exudate at the point of inoculation with the tubercle bacilli fills the air cells and terminal bronchus of a secondary lobule. Dunham believes that the presence of two or more of these fans of different densities in the location mentioned constitutes a lesion which is pathognomonic of tuberculosis. After the apical lesion the most common one is caseous bronchopneumonia, which usually first invades the upper lobe above the second interspace, then the upper portion of the lower and median lobes, then the lower part of the upper lobe. It may become confluent. Both lungs may be involved, but not to the same extent, as a rule. Acute miliary tuberculosis presents a characteristic picture, with fine studdings more or less evenly distributed throughout both lung fields; the history and clinical picture are necessary to differentiate these from pneumoconiosis. Basal tuberculous lesions without apical lesions are rare, and occur mostly in children.

Watkins has found 172 cases of pulmonary syphilis in 6,500 examinations of the lungs and heart, and 209 cases of syphilis complicating advanced tuberculosis. The types of radiographs may show the following lesions, gummata with syphilitic peribronchial densities, syphilitic peribronchial densities; bronchostenosis with lung collapse and marked deformity. Syphilis and tuberculosis may occur simultaneously in the same chest.

Primary sarcoma is usually lymphosarcoma and is shown as a large single shadow; secondary sarcoma may appear as large or small, usually multiple, rounded circumscribed shadows. Metastatic carcinoma gives fairly regular shadows, apt to be limited to a hilus region. Primary carcinoma is less frequent, but presents a characteristic picture. The invasion may be either infiltrative or miliary.

Cysts may be either echinococic or dermoid.

In differential diagnosis the x-ray plays a very important role in showing the presence of foreign bodies in the lungs, in showing abscess of the lung, in showing localized interlobar empyema, in showing metastatic shadows in the lung tissue and mediastinal glands in lympho-sarcoma and carcinoma. The x-ray also gives definite information as to number, size and character of cavity areas not revealed by physical signs. X-ray is also of value in making a decision as to the advisability of inducing artificial pneumothorax; and when treatment is begun frequent fluoroscopic examinations will show definitely the amount of compression obtained, the displacement of the heart and mediastinum; and the presence of small amounts of pleural exudates when formed.

In classifying tuberculosis into the different stages of incipient or minimal, moderately advanced, and far advanced, the x-ray adds greatly to the accuracy of physical findings by following the rule laid down by Heise, Brown and Sampson.

In prognosis x-ray gives information that has an important bearing in connection with physical signs and subjective symptoms. Pirie states "that favorable prognosis is based upon absence of abundant mottling; presence of calcification in roots of lungs, and better still, in parenchyma of lungs; also in no diminution in the size of the heart; unfavorable prognosis is based upon abundant fluffy mottlings; no calcification anywhere; diminution in size of heart; this dim-

inution is out of proportion to that of other muscles."

Conclusions:

1. The x-ray is of great assistance in diagnosing pulmonary tuberculosis and in determining the extent of the disease and in locating the size and character of cavities.

2. The x-ray is of great assistance in correcting errors in physical examinations and in making a diagnosis of the non-tuberculous diseases of the lungs.

3. The diagnosis of active tuberculosis should not be made from x-ray plates alone, but only after consideration of the physical signs, subjective symptoms and complete clinical and laboratory examinations with correlation of all data thus obtained.

4. After the diagnosis of tuberculosis has been made, serial plates or fluoroscopy at intervals is of great assistance in the treatment by means of pneumothorax; is of some assistance in prognosis; and is of value in conjunction with physical examination, in giving accurate information as to extension of classification and progress of the disease.

LABORATORY DIAGNOSIS OF PULMONARY TUBERCULOSIS*

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The laboratory is useful in obtaining information regarding the diagnosis of pulmonary tuberculosis through any or all of the following three agencies: (1) examination of the sputum; (2) the use of tuberculin; and (3) complement fivation test.

(1) The examination of the sputum smear for acidfast bacilli by special staining methods is a procedure familiar to every physician. The presence of acid-fast bacilli in sputum coughed from the bronchi and deposited at once into a clean sterile container, is conclusive evidence of a tuberculous infection some place in the respiratory passages. Unfortunately for diagnosis, a tuberculous infection may exist and its presence be not so easily identified. If bacilli are not found upon careful direct smear examination, at least 20 c.c. of sputum should be collected, and the antiformin method applied. This is a method for digesting the mucus and pus from a quantity of sputum by the use of equal parts of 15 per cent sodium hydroxide and 10 per cent sodium hypochlorite. If the organisms are few in number, this method makes it possible to get all that are present in a quantity of sputum on a single slide. If no tubercle bacilli are found by the antiformin method, a guinea-pig may be inoculated. The washed sputum may either be injected intraperitoneally, subcutaneously or into damaged inguinal lymph glands. A small indurated nodule will appear at the point of subcutaneous injection within 10 to 15 days, which softens into tuberculous chancre. By squeezing this ulcerated area, a discharge may be obtained, which when stained shows tubercle bacilli.

(2) An intradermal test, using O. T., may be carried out by freshly preparing a series of dilutions, ranging from 1:100 to 1:10,000,000. This is freshly prepared because tuberculin in high dilution deteriorates rapidly and within a few days will become unreliable. The dilutions are made by setting up a series of six sterile test tubes with tube No .1 containing 9.9 c.c. of sterile physiological salt solution and each of the remaining five containing 9 c.c. of sterile physiological salt solution. With a sterile pipette 0.1 c.c. of O. T. containing 100 mgms. to the c.c. is added to tube No. 1 and thoroughly mixed. This makes a 1:100 dilution of which one c.c. is transferred to tube No. 2, making a 1:1000 dilution. This process is carried on to the sixth tube, making each succeeding tube

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ten times more dilute than the preceding tube. Tubes Nos. 1 and 2 are discarded because of their concentration. Intradermal injections from tubes Nos. 3, 4, 5 and 6 are made as in the Schick Test. A control of sterile physiological salt solution is also made. This method not only demonstrates whether or not the patient is sensitive to tuberculin, but shows a quantitative estimate of such sensibility.

(3) The application of the complement fixation test to the diagnosis of tuberculosis has been carefully investigated in recent years and considerable experimentation is going on at the present time. It seems that the best results have been obtained by using physiological salt solution suspension of dead tubercle bacilli as an antigen. In summing up available literature, it seems that the results of this test agree with clinical findings in about 70 per cent of the cases. Some investigators report encouraging results from using Lederle's O.T. diluted 1:10 as an antigen. My personal experience has been with using a normal salt solution suspension of dead tubercle bacilli as an antigen. It seems that patients who have resistance or who possess tuberculous antibodies will show a positive test, while others, who have ever so bad a tuberculous infection, will show a negative test, if their resistance to such infection is poor.

"CURES" IN TUBERCULOSIS*

E. A. DUNCAN, M. D., El Paso.

No class of sick people is so well adapted to exploitation as are the tuberculous. The course of the disease is essentially long drawn-out, exacerbations and remissions succeed one another over a period of years. One sort of drug treatment after another is followed without appreciable result and still the natural hopefulness of the consumptive keeps him ever on the hunt for a short cut out of his difficulties. Every physician who has much contact with the tuberculous expects to find Tanlac or some of its congeners on the bath-room shelf of his supposedly intelligent patient, to hear that he is being cured by somebody's new inhalation, having his spine realigned or receiving some new and potent electrical vibrations. Quackery is as old as medicine and we shall have it with us until human nature undergoes some unforeseen and radical change.

When we consider the fact that all so-called cures for tuberculosis last for a period of months to a year or two, even in one locality, the question at once arises how can they live at all? Granting that the victims are always eager to try something new, why does not a week or two suffice to convince any patient that he is again off on a false scent? The answer is that they all do good for a short period, provided, of course, that they are not directly harmful. In illnesses other than tuberculosis it is readily understood that the good effects may be permanent. Most of the diseases which we have to treat have a strong tendency toward recovery. Many of them subside under any or no treatment. Indeed, it has been said that no disease is curable which may not sometimes undergo spontaneous recovery. The ailments which are totally imaginary yield as well or even better to quackery than to legitimate treatment. In tuberculosis — and by that I do not mean tuberculosis mistakenly diagnosed—the situation is somewhat different but the tremendous effect of suggestion is just as or even more powerful than in other illnesses in which the patients are less alert mentally. I have been told by physicians who formerly used tuberculin that they not infrequently encountered a patient who developed the idea that tuberculin caused a rise in his tem-

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perature. On the next tuberculin day saline solution would be substituted for tuberculin. The temperature rise followed in due course. Any treatment, however fantastic, is productive of good results for a time when directed with enthusiasm, real or feigned. We need only recall the good results obtained with the most varied forms of harmless medication which have been reported from time to time in most respectable medical journals. We need only recall the testimony of some sixteen or eighteen residents of El Paso, Texas, and Pine Bluff, Arkansas, who, quoted or described, declared for a new treatment in our own midst a year or two ago. The classical experiment of two French investigators, Matthieu and Dobrovici, is highly instructive in this regard. These physicians announced to their patients in the Andral Hospital in Paris that a new cure for tuberculosis had been discovered and would be available within a short time. To this drug they gave the high-sounding name of Antiphymose. Everything was now done to arouse the excitement and enthusiam of the patients for the new cure. Medical histories were retaken in the greatest detail. The patients were repeatedly examined and with the most meticulous care, ostensibly to determine their fitness for the treatment. When excitement and anticipation had been worked up to a high pitch the arrival of the drug was announced. "Antiphymose" consisted of nothing more or less than normal saline solution used subcutaneously.

Treatment was now begun and the results were at once startling. Patients who had been febrile now had normal temperatures, cough and expectoration were reduced and gains of weight of three to six pounds were made within a very short time. In short, both subjectively and objectively the improvement yas remarkable. But, as was to be expected, the effect of suggestion in such a serious illness was not lasting and when injections were stopped the patients soon reverted to their original condition.

All such "cures" do not harm in themselves. The unfortunate part of the matter is that so often, if not usually, the real curative measures are lost sight of in the enthusiasms for the new treatment, or, when it is based on quackery, they are neglected. Second, the final disappointment of the patient is productive of nothing but harm.

Since the original preparation of tuberculin by Koch in 1890 this substance has been the basis of many proposed cures for tuberculosis. Disillusionment has followed in each case. I was once acquainted with an old German physician, the medical director of a Swiss sanatorium, who, at the time Koch brought out tuberculin, was in charge of one of the large insurance sanatoriums in Germany. I am indebted to him for some of the facts of the early history of tuberculin. On Koch's recommendation tuberculin was hailed with enthusiasm as a cure for tuberculosis and its use begun. It was administered in what we would regard today as massive dosage and the results were disastrous. All over Germany the poor patients were "todespritzt"—injected to death—as this doctor put it. This fiasco resulted in prompt abandonment of tuberculin and in Germany it was ten years before patients could be induced to submit to tuberculin treatment, so great was their mistrust, even with the small dosage proposed by Aufrecht and others. The old doctor could never persuade himself to use it again. It was not until 1907 or 1908 that the present tuberculin era of infinitesimal dosage and avoidance of reaction may be said to have begun.

Ten years ago I spent three months in Berlin for the purpose of making some personal observations on the Friedman cure, certainly the most widely advertised cure of recent years. In the preceding winter Friedman had presented a paper before the Berlin Medical Society describing his new treatment for tuberculosis by

the injection of living tubercle bacili said to be pathogenic only for reptilia. His results had favorably impressed several quite substantial medical men in Berlin though I was told that when he read his paper there were smiles on the faces of some of the more sure-footed and even an "Oho" or two from Orth, the pathologist, who at once challenged some of Friedman's ideas. Friedman's paper received a line or two in European papers, but in America it was heralded from front pages and with the usual results, clamor for the treatment by the ever optimistic consumptive. Friedmann speedily succumbed to the lure of America and in the spring came to this country and treated a number of patients in New York and New England. I am told that great numbers of patients from all over the country, even from the Southwest, went to New York to meet him. When I was in Berlin his clinic was in charge of Schleich, of local anesthesia fame, a surgeon. There was no rush at Friedmann's clinic, though a number of patients were under treatment. I saw some apparently favorable results, no doubt of the character of those obtained with "antiphymose," and also some untoward results in the way of febrile exarcerbations and pulmonary bleeding after the injections. Freidmann's cure has now been almost forgotten, though there has since been an occasional echo of it from some experimenter who has become interested in some phase of its possibilities. It must be admitted that there is something intriguing in the idea of immunization by introduction into the body of living tubercle bacilli, but the hope for cure by the injection of an antigen, mild in character, in a body already swamped with a most powerful antigen in the shape of living and pathogenic tubercle bacilli can hardly be taken seriously. These instances I mention to show what happens to cures.

Oliver Wendell Holmes, always an interested student of charlatanry, wrote that quackery depended on the use of drugs or at least a nomenclature that suggested them. This is not true at the present day when drugs occupy a position subordinate to mechanical quackery, to manual manipulations, electrical currents of various sorts, and mental cures, religious and otherwise, even diabolical sometimes in the way they work out. All of these have been employed in tuberculosis though to a far less extent than drugs. Many sorts of drug treatments have been used both by quacks and by conscientious though perhaps short-sighted physicians alike, and I am not casting any aspersions on the latter. The best that can be said of most of these cures is that, fortunately, they have been in themselves harmless. In a few words Fishberg has summed up the matter of medical treatment as follows: "—we have no specific botanical, chemical or physical agent which when administered to a consumptive, will exert a selective action on the tubercle bacilli, as mercury and arsphenamine do on the spirochete of syphilis, and quinine on the malaria parasite. Nor have we a therapeutic agent which will enhance the resistance of the tissues against the ravages of the tubercle bacilli, or neutralize their poisons, or stimulate sclerosis of the affected area." There is no such thing as a specific treatment. The measures we do have are the time-honored rest, fresh air and proper food with drugs in the position of supportive measures, for the relief of symptoms and above all for their psychic effect. In spite of this fact the list of drugs which have been used with a belief in their specificity is too long to enumerate. Every year, perhaps every month sees some scientific gentleman arise with a cure for tuberculosis. Last week it was emanations of the male goat, just as plausible as some of the cures which have gone before and are now forgotten. What we need is a delousing station for cures to pass through before they gain newspaper publicity and come to the attention of the credulous and unenlightened.

In this day and generation there is one test for a cure, honest and dishonest, for who can always separate the two in the beginning? This test is made much the same way in which arsphenamine was studied. First, the cure must be studied in a large series of patients over a long period and the results judicially examined and evaluated. Second, it must be put in the hands of a number of competent and independent observers with hospital and laboratory facilities for its exhaustive study for their confirmation or rejection on the results first obtained. When this has been done, and the judgment is favorable then it is legitimate for the rest of us to accept it for use among our own patients. Its honesty and value will then be proved. If this has not been done then the chances are that the cure is either dishonest or worthless.

I would like, in conclusion, to volunteer a word of advice to anyone who wants to try a new cure and to anyone who plans to give one. To the first I would say, "Do not delay. Take the new cure quickly while it is hot and effective, for it will not last long." To the second, "Your cure must be impressive. Absent treatment and the laying on of hands require too much imagination on the patient's part; the pungent inhalation and the hypodermic needle are always available. And charge. Remember the importance of the quid pro quo; if your charges are insignificant, so will be your success. Work hard with the first patients, the results in their cases must be good ones; then cures will, for a time, be as contagious as measles. Explain everything to your patients so that they will have much to tell others. But never tell the truth. If you prefer fact to fiction you are doomed to failure. The way to succeed is to assert forcefully and confidently not the truth, but what your patients want to hear. This is what the public demands and success depends on giving it what it wants."

TUBERCULIN AND AUTOGENOUS VACCINES*

R. B. HOMAN, M. D., El Paso, Texas.

Shortly after discovering the specific organism of tuberculosis in 1882, Dr. Koch began the task of developing a biologic product which would assist in overcoming the disease, and in 1890 he announced one which he named Tuberculin and with which he claimed to be able to produce immunity in animals inoculated with tubercle bacilli and to arrest further progress of tuberculous processes in animals already infected with tuberculosis.

Tuberculin is a bacillary protein, made originally by Koch from the culture media in which the bacilli were grown and made later by other observers either by suspending the dead bacilli in a solution usually known as Bacillin Emulsion or by extracting the protein from the killed and ground bodies of the bacilli in different ways.

All of these preparations depend for action upon the same principle; that is, the specific bacillary protein: the difference in various products is largely quantitative rather than qualitative. Tuberculin is not a poison, since it can be administered to nontuberculous individuals in large doses without untoward results, reacting only in those infected. It has been extensively used both for diagnostic purposes and in the treatment of the disease—tuberculosis.

Soon after Koch announced the preparation in 1890, it was used very extensively, largely by physicians who knew little of its effects, the rules of dosage, etc., and used on advanced stage cases, with the result that it was more abused than properly used and did not give the expected results. It therefore soon fell into disrepute with all save a few men

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who continued its use, studying its effects and getting good results with it. There is no doubt but that tuberculin, when properly and judiciously used, is of decided value in the treatment of tuberculosis in any part of the body. It has proved to be of special benefit in tuberculosis of the eyes, due largely to the fact that the focal reaction can be so easily observed and the dosage governed thereby.

The mode of its action is two-fold:

1. It increases the immune bodies, agglutinins, opsonins, etc., in the blood.

2. It produces a passive congestion or reaction at the focus of infection; or, in other words, sends a larger per cent of immune bodies to the affected area.

There are two very important general rules which should be kept in mind by those who undertake to administer tuberculin:

1. Since no two cases of tuberculosis are alike, so no two will react to tuberculin in the same way. Consequently one can not get good results by following a regular routine for administering it in all cases. The dosage must be adapted to the individual case. Some patients are able to take twice as much as others without untoward effects. In the early history of tuberculin, the dose given was universally too large and the increase was too rapid.

2. Tuberculin should not be used at all in far advanced tuberculosis, in early stage cases where the patient is showing a high temperature, very rapid pulse or other indications that the disease is in an acute stage or of the fulminating type, nor in acute miliary tuberculosis.

We have found it of real value in two types of cases:

1. Those in the early stage who show little evidence of toxemia.

2. The moderately advanced who have apparently reached a standstill and need something to stimulate their nautral immunity and take them "over the top," as it were.

As a diagnostic agent tuberculin is undoubtedly of great value. Koch found, when he first began his experiments with tuberculin, that it would produce a marked reaction if given hypodermically to one suffering with tuberculosis, even in a latent form, but that it would not react in one who was unaffected, and he made use of this in diagnosing the disease. The subcutaneous test was the only one known from 1890 to 1907. In 1907 Wolff-Eisner and Calmette, working independently, announced the discovery of the conjunctival reaction, which they made use of in diagnosis. In the same year Von Pirquet made the observation that when tuberculin is inoculated into the skin through an abrasion, a reaction occurs at the point of inoculation, and thus was developed the Von Pirquet or skin test. Some time later the percutaneous test was perfected by Moro and it still bears his name. It consists in using an ointment made by mixing equal parts of Koch's old tuberculin and lanolin and rubbing it into the skin, preferably where it is thin, such as on the abdomen just below the ensiform cartilage. In twenty-four to forty-eight hours a reaction usually occurs and consists in the appearance of a number of small red spots over the area. This test is of especial value in babies and small children. The most widely used of these tests is the Von Pirquet or skin vaccination test. It is reliable and entirely harmless.

AUTOGENOUS VACCINES

These consist of the suspension of killed bacteria, artificially grown by inoculation of the culture media with the discharge which contains the disease germ taken from the patient who is to be treated, thus giving the advantage of having the particular strain of bacteria that the patient is trying to combat. They have proven very beneficial and are far superior to the so-called stock vaccines which are quite generally used. Their action is very similar to that of tuberculin in tuberculous subjects; that is, they stimulate the formation of immune bodies in the blood.

Not all patients respond favorably to the administration of autogenous vaccines, but a sufficiently large per cent respond to make the use of such treatment well worth while. Autogenous vaccines have been found of especial value in the non-tuberculous chest infections following influenza or pneumonia, in asthma and hay fever, in infections occurring as complications in tuberculosis, and in toxemia from infected tonsils, teeth, etc.

ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS*

E. D. PRICE, M. D., El Paso, Texas.

The late J. B. Murphy was the first to use compression of the lung as a therapeutic procedure in this country. He was very enthusiastic about it and published his results in 1898. Forlanina, of Italy, had been at work on the same subject independently. He published his results about the same time.

The method did not come into popular use with tuberculosis specialists until 1912. The papers read before the National Tuberculosis Association in that year by Mary Lapham, Floyd and Sloan, caused widespread interest in it. The October number of Southwestern Medicine says that it was first used in Phoenix in 1912 on three patients. All of these patients are living and well.

Compression should not be used on any case that can get well without it, because it is a long drawn out procedure and it has complications that arise from time to time. However, after an adequate length of time, if a patient has not shown improvement on the usual sanatorium treatment, pneumothorax should be considered.

If we wait too long, the patient will either have his lung tied down by adhesions, or some severe complication will develop. The rapidly progressive unilateral case with high fever and great toxemia is the best type for compression. It will quickly relieve them of their toxemia, if adhesions do not prevent its use.

Any unilateral case that is progressive is a good gas case. Bilateral cases where one lung is not very active, or does not have much involvement, respond nicely to compression usually. Rales are sometimes transmitted and you will be surprised at times by an improvement in the better lung after pneumothorax is used.

The rapid lessening of the toxemia allows the patient to build up his resistance. Compression is indicated frequently in persistent pulmonary hemorrhage. It acts brilliantly in these cases. At times on account of a patient's financial status, compression may have to be used. That is, a patient may be compelled to work and thereby ruin his chance of getting well.

Compression acts purely mechanically. It squeezes the pus out of the lung and prevents the spread of the disease. It prevents the absorption of toxins by the lymphatics. Thus, it quickly lowers the fever, improves the appetite and digestion, lessens the cough and improves the patient in every way.

Like all methods of treatment, this has varying degrees of success. Adhesions may be so strong that no air can be injected, or they may yield so slightly that you can only get a partial compression. Often a partial compression gives a satisfactory result. It reduces the toxemia to such an extent that the patient can handle his disease.

X-ray plates should be taken of the patient before pneumothorax is begun and the fluoroscope is needed frequently to see in what position the lung is. It shows adhesions and small amounts of fluid better than anything else.

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Better results are being obtained by gas than formerly. Smaller amounts of air are being injected. Peters says that no one should inject more than 400 c.c. at first, unless it is a hemorrhage case. Where large amounts are injected rapidly, it embarrasses the circulation and the other lung may be partially compressed by a movable mediastinum. The other lung, if diseased, is more apt to take on activity.

Adhesions are the greatest stumbling block in the way of success in pneumothorax work. Matson found no pleural space in 20 per cent of his 600 cases, and in 40 per cent more, a good compression could not be obtained. Sometimes, adhesions will stretch and allow you to get a satisfactory compression. Some adhesions are so slight that they break easily. Sometimes the other lung will flare up and take on renewed activity and compression will have to be stopped.

Laryngeal and intestinal tuberculosis are not contraindications to the use of gas. They will improve as a rule, especially the throat. Some apparently severe cases of intestinal tuberculosis are cured by it; they probably are a toxic enteritis and not tuberculous.

There is no use to compress a moribund case. It will only help to bring a good method into disrepute. There is no treatment in tuberculosis that requires better judgment and the use of more common sense than pneumothorax. All the evidence should be weighed pro and con before beginning the treatment.

The complications arising during pneumothorax may be gas embolism, pleural shock, a natural pneumothorax with empyema, subcutaneous and deep emphysema. The lung may be punctured by the needle. It usually causes no trouble.

Gas embolism is very serious. It occurred four times in 12,000 administrations by Matson. Two were fatal. Pleural shock happened fifteen times, with no deaths. Gas embolism can be largely prevented by a careful study of the manometer. No air should be injected unless you have a good oscillation. The patient should be warned not to move or to cough while the needle is in position, else the lung may be torn. Codein may have to be given to control a bad cough at times.

Pleural shock can usually be prevented by using plenty of novocain and anesthetizing the parietal pleura carefully. Subcutaneous emphysema is painful, but of no importance otherwise. Deep emphysema is usually not dangerous. It might obstruct the tissues of the neck and interfere with respiration. I have never seen it do so.

If you cannot get the air to remain in the pleural cavity, of course, you will not get results. Varying amounts of fluid develop in 50 per cent of cases. In most of them it is only a small amount and of no consequence. There are many causes given as to the fluid formation; some claim it is due to the tubercle bacillus, others claim it is due to the irritation of the air and others to the separation of the pleural surfaces, and interference with their absorptive powers.

When fluid is forming a patient will usually run temperature for a few days to a few weeks. The pleura becomes more sensitive to the needle. Its presence can be suspected by the quick rise in pressure after the injection of small amounts of air. Some of these fluids are sterile, some contain the tubercle bacillus and others have mixed infections. Fluid formation favors the development of adhesions and an obliterative pneumothorax. If too much fluid forms, it should be withdrawn and replaced with air. Sometimes the fluid seems to have a beneficial result by aiding the compression.

Empyema results once in a great while from a cavity wall being torn and infecting the pleural cavity. This is a very serious complication. It should be treated by aspiration and lavage and the use of dyes. It sometimes follows a natural pneumothorax.

Compression should be kept up for

at least two years, according to Fishberg. Matson is keeping it up as long as he can. Sooner or later one has to stop it on account of adhesions. Matson has some cases that have taken it five to six years. Some French troops served through the late war with a compressed lung. I have one patient that recovered after eight months of compression. If one is compressing a lung that is full of bad cavities and rotten tissue, the longer compression can be maintained the better. The best that can happen is to have such a lung tied down permanently, else it is a menace to the individual. When the lung re-expands, the good tissues function again. I have one patient whose left lung was compressed for 16 months. Now you can hardly tell which lung had pneumothorax.

Peters says that the lungs of his cases frequently function perfectly after they are released. Gekler states that gas cases postmortem are the only ones showing the broad scars of healed cavities. He says that compression increases connective tissue formation more than any other method of treatment. Matson, in his 600 cases, had 149 clinical cures and 84 arrested ambulant. There were 274 dead, and the others were favorably influenced. Of the 274 dead, in 80 cases he could not get any compression. In only 52 of these 274 cases could he get a satisfactory compression.

A. F. Miller, in his seven years' experience with gas, had 34 per cent well and working, 32 per cent living, but not working, and 34 per cent dead. Peters, in an analysis of the end results of compression in far-advanced cases, as compared with the routine treatment of these cases, found that the far-advanced case had only 4.5 per cent chance of getting well in the eastern sanatoriums and a 15 per cent chance in the western institutions. With the use of gas this percentage was increased to 31 per cent. That is the end results are seven times better than the sanatoriums in the east are getting by routine treatment and twice as good as our western institutions are showing without its use.

A great many patients can take pneumothorax and be able to work after a few months. For a patient that is forced to work, compression offers a way out. Pregnancy is a very serious complication of tuberculosis. By pneumothorax, Gray and others have carried a number of women through pregnancy without any harm to their lungs. No other method of treatment, in any other branch of medicine, can show as good results in those suffering from hopeless constitutional diseases, as pneumothorax offers the hopeless tuberculous.

CLIMATE IN TUBERCULOSIS*

ORVILLE EGBERT, M. D., El Paso, Texas

For years and even centuries climate has been regarded as the most valuable adjunct in the treatment of tuberculosis.

Some ten years ago a wave swept through medical literature reflecting itself in the lay press and public opinion as well, discrediting climate, and holding up fresh air as the agent of value.

This position was not effectively challenged by the disciples of climate for two reasons: first, physicians and theurapeutists had not coordinated their knowledge of climate to the extent that they possessed a true scientific explanation of its worth; second, to attack the merits of fresh air as a panacea would tend to dishearten those sufferers unable to take advantage of climatic change.

However, in spite of this fresh air school of thought, climate weathered the storm of criticism and has re-

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ceived exhaustive study at the hands of research men the past few years. As a consequence the literature has been crowded for three or four years with studies of climate that have led to some decisive conclusions.

The high and dry climate is the one considered almost universally. We can pass such physical aspects of climate as even temperature, a low precipitation, few stormy days, high number of sunshiny days, small amount of decaying vegetation, etc., without elaboration because their merits are obvious.

We will first consider fresh air. None other than the Journal of the American Medical Association of so recent a date as November third, last, speaking editorially, states that "bad air" of a closely confined room that may have been breathed again and again, and containing carbon dioxide and the hypothetic respiratory poison supposed to exist in expired air, could not sustain its acquired reputation of being dangerous to man. He breathes the air every minute of the day and is more or less bathed in it, and has become adjusted to its chemical composition and physical properties and their variability.

This discrediting of the danger of the chemistry of "bad air" of course has no reference to true toxic gases as carbon monoxide or droplet infection suspended in air.

Improper temperature, improper humidity and lack of air movement are the true conditions to consider with reference to air. A combination of high temperature, high per cent of relative humidity, and no air movement will reduce mental and physical effort most noticeably. Most important of the three is humidity. Retain your high temperature, but reduce the humidity to where normal evaporation of perspiration occurs and excessive body temperature is thrown off and the period of depression passes.

But the outstanding subject bearing on climate is heliotherapy. The effect of the sun's rays upon metabolism is of course not fully understood, but its effect is definite and constant. In some form radiant energy is absorbed and stored by the blood, and distributed to the tissues; but how this is done is as vague as the rest of the great subject of metabolism.

The dean of the school of heliotherapy is Rollier of the famous Leysin Clinics in Switzerland. He started his work in 1910, using heliotherapy as a prophylactic in children predicposed to tuberculosis. Gradually he developed his work until his extensive clinics for surgical tuberculosis are the result. His complete work was published for the first time in English this year. Other men, both in Europe and America, have corroborated his work and extended heliotherapy to pulmonary tuberculosis with encouraging results.

Rollier, in his book, emphasizes the following; the solar spectrum is divided into the visible and invisible spectra. The visible spectrum contains the seven well known colors. The invisible spectrum is composed of the infra-red rays at one end of white light, and the ultra-violet rays at the other. It is the ultra-violet ray that concerns us most in heliotherapy. Their wave length, frequency and intensity when they reach the skin, mark their value. These rays are absorbed and broken up by anything suspended in the ether.

Dense air, smoke, dust and humidity will all absorb short ultra-violet rays and diminish their frequency and intensity.

For that reason Rollier sought the high and dry climate. At a high altitude the air is less dense than at sea level, therefore there is less absorption. A location where there is a low per cent of humidity means less absorption of these beneficial rays. Then certainly a climate attains the ideal when it is both high and dry.

Mayer, in 1921, briefed the literature of the previous two years on climate in tuberculosis, and the harmony of opinion as set forth by the Swiss, French, German, English and American writers was remarkable.

In effect it was that climate is the most valuable adjunct in treatment of tuberculosis, and that climate really meant high and dry, because of the richness of the short ultra-violet rays of the sunlight at such a favorable locality.

It is impossible to go into the technic of heliotherapy here, but I would like to say a word regarding contra-indications to heliotherapy. The contraindications are weakness, excessive toxemia, and hectic fever. Other purported contraindications have largely proved erroneous.

Earlier experimenters with heliotherapy obtained bad results from improper application, prolonged exposure, sunlight filtered through glass, or some other medium which totally absorbed the therapeutic ultra-violet rays.

Naturally these experimenters became prejudiced against heliotherapy and led to a declaration of erroneous contraindication.

Heliotherapy has been stated to produce hemoptysis and foci of congestion in the lung. This is true if exposure to the sunlight is prolonged. But if properly and scientifically applied and due consideration is given to the fact that we are not only dealing with the most potent of all energy, but actually with the author of energy, itself, no ill effects need be sustained from its use.

Rollier says "We have frequently found that with patients subject to hemoptysis a carefully controlled course of sun-baths, far from increasing this tendency, caused it to disappear. Properly applied, I am convinced that heliotherapy would be a useful factor in the treatment of the great majority of cases of pulmonary tuberculosis. Tuberculosis, whatever its situation, is a general rather than a local disease, and treatment causing improvement in the general health of the patient is our best means of combating pulmonary as well as surgical manifestations."

SURGERY IN PULMONARY TUBERCULOSIS*

W. L. BROWN, M. D., El Paso, Texas.

In reviewing the developments of surgery in pulmonary tuberculosis we will make the following divisions: first, surgery directly on the lung, including a pneumectomy and lobectomy; second, the drainage of cavities; third, indirect surgical attacks, including the various forms of thoracoplasties; fourth, tuberculous pleurisies and empyemas; fifth, general surgical conditions and their management in pulmonary tuberculosis; sixth, anesthesia in its relation to pulmonary tuberculosis.

Morales, in Spain, who has done much in advanced work in tuberculosis, concludes that surgery should be resorted to any when other measures fail. He states that no attempt should be made to resect the lungs or open up cavities as these interventions are extremely grave and the results doubtful. He claims good results for the resection of the phrenic nerve on the diseased side if the disease is confined to one lung. He further states that in operations directly on the lungs the mortality is enormous and the benefit transient. In three cases in which a cavity was opened and drained all three patients died. A fair review of the literature indicates that his conclusions very well represent the opinion of others of experience.

Shortle and Gekler, of Albuquerque, in 1922 undertook to disinfect tuberculous pulmonary cavities by injecting a solution of gentian violet in distilled water containing 10 per cent alcohol directly into the cavity with a hypodermic syringe. This proved very irritating. They were discouraged and made no further at-

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tempts to follow up the treatment. Drs. Lovelace and Gekler, of Albuquerque, have since that time opened three cavities directly through the chest wall after rib respection, and treated these cavities under direct inspection through an electrically lighted speculum, making various applications, including gentian violet and methylene blue. I had the pleasure of seeing their first case; the cavity was the size of a lemon, or larger, in the upper right apex. It could be inspected through an opening in the chest wall approximately two inches in diameter. Their experience in these cases indicates that the operation, itself, was not serious. All the work except going through the chest wall was done with the cautery, and the operation can be done under local anesthetic. These cases were relieved of some of their septic symptoms, and the cavities showed considerable evidence of shrinking. These doctors had not hoped to close the cavities, but had only hoped to sterilize them and relieve the patients of some of their septic symptoms. One of the surprising features of these cases was that the cavities showed considerable evidence of shrinking, and the opening in the chest walls were inclined to close.

Thoracoplasties are the operations which seem to be accomplishing the most in pulmonary tuberculosis. There are a number of forms of thoracoplasty, the details of which I shall not endeavor to go into tonight. They may be found in any of the recent articles. The indications for thoracoplasty are really two: first, those cases where pneumothorax would be indicated but could not be performed because of pleural adhesions; and, second, in cases of cavities that are practically to one lung, and the obactive where the disease is confined ject is to collapse these cavities. The resections are usually done in three stages, and Sauerbruch's operation is generally the one of choice, and consists in the removal of large sections of the second to the tenth ribs. Brown and Eloesser's conclusions as to the indications for thoracoplasty approximately represent the latest consensus of opinion:

1. Operative collapse of a tuberculous lung is indicated mainly in unilateral tuberculosis, when an artificial pneumothorax is indicated but cannot be carried out effectively.

2. Chronic fibrous phthisis, with thick pleural deposits and a rigid chest wall, offers the most frequent indication.

3. Operation should be decided on only after close observation and study of each patient, after repeated consultations with a competent internist, and after attempts at compression by means of pneumothorax have failed.

4. The procedure of choice is (a) Sauerbruch's total thoracoplasty; or (b) partial pneumothorax with partial thoracoplasty.

5. Operation should be done under local anesthesia.

6. Some patients will be cured by operative collapse after other treatment has failed.

The conclusions of Hedblom, of the Mayo Clinic, relative to tuberculous pleurisies and empyemas seem to represent the latest thought on the subject. So far as surgery of the condition is concerned they are as follows:

1. In a closed pleural cavity a sterile effusion, whether serous or purulent, should not be treated by open drainage, except in the presence of an impending perforation of the chest wall.

2. Repeated aspiration of only part of the fluid present is indicated in cases of serous effusion when it produces definite dyspnea on exertion or symptoms of circulatory embarrassment.

3. The replacing of aspirated fluid by nitrogen or filtered air may be indicated in cases in which there are symptoms of active phthisis referable to the same side as the effusion.

4. A sterile purulent effusion should be treated as though it were serous if the lung expands when fluid is withdrawn. If the lung is fixed in a collapsed condition, or if the effu-

sion persistently recurs, an extrapleural plastic operation is indicated.

5. Effusion in a closed cavity showing a mixed infection should be treated by the closed method with antiseptic solution irrigation, or by open drainage; the open drainage is indicated especially in cases of severe infection associated with extensive pulmonary tuberculosis, making irrigation hazardous.

6. Tuberculous empyema with a large bronchial fistula should be drained by the open method.

7. A large tuberculous empyema with mixed infection from a previous drainage operation or from spontaneous perforation of the chest wall requires a plastic operation, preferably after treatment with Dakin's solution.

8. A plastic operation involving closure of a bronchus offers the only prospect of cure in case of an associated large bronchial fistula.

9. Dakin's solution irrigation may be contraindicated in the presence of an extensively diseased lung, owing to its corroding action on any superficial lesion, possibly resulting in hemorrhage or the formation of a bronchial fistula.

10. A plastic operation is usually eventually required in the case of closed cavities when the empyema is of long standing, and of all large, open, secondarily infected cavities.

11. An extrapleural rib resection is indicated for the collapse of closed sterile cavities. The Boiffin-Wilms operation is especially suitable for the collapse of large cavities without excessive thickening of the parietal pleura or rib deformity.

The subject of general surgical conditions and their management in relation to pulmonary tuberculosis is entirely too large a subject to be discussed in this paper, and only a few general principles can be laid down. First, it is generally agreed that any surgical condition that is retarding recovery in pulmonary tuberculosis should be given operative consideration. The points then to be weighed after it is definitely settled that the surgical condition is a liability to the patient is whether or not the condition can be handled surgically without sufficient detriment to over-balance the good effects. This decision can only be reached by a very close association between the man especially equipped to treat pulmonary tuberculosis and the man surgically equipped to operate with the least possible consumption of time and trauma to the patient. I would especially emphasize the importance of early operation for mild and continuous symptoms of appendicitis in patients with active pulmonary tuberculosis. These symptoms are often due to an early tuberculosis of the appendix or cecum, and delay until the development of acute symptoms of appendicitis, diarrhea, or other symptoms of a tuberculous bowel is fatal to the patient. The present consensus of opinion is that operations are contraindicated for extensive resection of the large, and especially of the small, bowel for tuberculosis where the process is active in the lung. An active process in the lung is not a contraindication for operation on fistula in ano. These patients frequently show much general improvement after a successful operation.

The choice of the anesthetic in the surgery of the pulmonary tuberculous patient is one much discussed, and will probably never be settled. It is perfectly plain that in active pulmonary tuberculosis local anesthesia should be used wherever possible. If not feasible, the next choice would be gas and oxygen. In a very chronic case, or active case of pulmonary tuberculosis, if local anesthetic is not feasible and gas would not be more desirable because of a prolonged operation, or one of technical difficulties where perfect relaxation is necessary, there is no proved objection to the proper and judicious use of ether. Much of the sentiment against ether has been due to its improper administration and the improper care of the patient following the administration.

CASE REPORTS

By Dr. G. Werley, El Paso, Texas

HYPOPITUITARISM, FROELICH TYPE

(Presented at the Medical and Surgical Association of the Southwest at El Paso, December 13, 1923.)

American male, 17 years of age, senior in high school. Came complaining of failure to grow beard, feminine voice, and infantile genitalia.

F. H.: The father has had many attacks of uric acid gravel, one distinct attack of gout, and for about ten years has had periodic attacks of glycosuria. The mother has rheumatic headaches and migraine. A brother was born with a hair-lip. A younger brother is normal in every way.

P. H.: The patient had the usual diseases of childhood, from all of which he made a good recovery. At ten years of age he had renal colic, which was relieved by the passage of a large amount of uric acid crystals. About three years ago he began to get fat and his mother said he was lazy. He was given thyroid and got a good deal better. Last May he came under my care again.

P. E.: Pale, waxy skin; slightly puffed and drooping eyelids; no sign of beard; no axillary hair; infantile genitalia with just a few pubic hairs; feminine breasts; female type of pelvis; fat lower abdomen; large thighs and genu valgun. (Fig. 1.) The voice was that of a child. There was deviation of the eyes outward and facial asymmetry. The teeth are well spaced, but the upper lateral incisors are absent, and below there are but three incisors. The nose is rather sharply pointed, the chin prominent and peaked, the hands and arms short and the fingers tapering. At this time he was 5 feet 5.5 inches tall, i. e., 65.5 inches, while his span was only 47 inches. The girth about the belly was 33.5 inches, the thigh measured 22 inches, and he weighed 130 pounds stripped. The urine was normal. The blood has not been examined.

X-ray of the skull showed a rather small sella. X-ray of the hands showed marked tapering of the terminal phalanges and no occlusion of any of the epiphyses.

All the evidence elicited points strongly to marked anterior lobe deficiency. The girdle fat distribution is due to posterior lobe deficiency.

Commencing June 15, 1923, he was put on one grain whole pituitary and from a quarter to one grain of thyroid by the mouth, and three times a week he had hypodermics of P. D. & Co.'s antutrin and pituitrin combined. Altogether he had about 20 hypodermics beginning with 7 min. each and gradually going up to 1 c.c. of each. The large doses of pituitrin caused some paleness, weakness and sweating, but no abdominal cramps. He has shown considerable improvement. (Fig. 2.) His color has changed to nearly normal, the face shows more animation, the baggy chin has almost disappeared, and the eyes are wider open and the deviation is less. There is just the faintest beginning of a beard. The public hair has quite evidently increased, the testicles have doubled in size, and the penis is 2 or 3 times larger. The distribution of fat has also changed. He has grown 2 inches in height. He weighs 135 pounds. The belly measurement has decreased .5 inches and the upper thigh 1 inch. The pulse is 66. Temperature 97.8. There is a marked change in his mental attitude, he is more aggressivea and has made fine progress in school. The voice is more masculine and his playmates have stopped teasing him on account of his feminine appearance.



Before Treatment *After Treatment*

AORTIC ANEURISM

(Presented before the El Paso County Medical Society, November, 1923).

Mrs. M. G. S., American, widow, aged 51 years.

F. H.: Married twice. The first husband died in 1895 from meningitis due to an injury to the eye. The second husband, whom she married in 1901, died in 1920 of tuberculosis of the larynx. There is one son by the first husband in good health. There were no other children and no miscarriages.

P. H.: The patient became ill early in 1919 with pain in the left costal region and there was cough and dyspnea. During this year she also had an attack of jaundice, which soon subsided. She grew gradually worse and by January, 1920, she was unable to lie down on account of dyspnea, and the pain in the left side was constant. Sometimes there were pains in the legs. A lung specialist was consulted, but he could find no cause for the symptoms in the lungs. In April, 1920, she was seen by a surgeon, who sent her for an

x-ray, the report on which was as follows: "Scolirosis of dorsal vertebrae, apex (of scoliosis) at 9th dorsal vertebrae; non-tubercular." She was put in a cast, but the pain grew worse and the cast was removed. In December, 1920, she had a gallstone attack and a gangrenous gallbladder was found and drained by operation. Her dyspnea seemed to improve for a time after the operation, but the pain in the left side continued. Early in 1921 she had a mental upset. She was confused, her memory was bad, and she lost the sense of direction. It was thought that her cough and dyspnea might be partly psychic, as she was very emotional.

P. I.: I first saw her in September, 1921. She then had a very severe and continuous pain in her left chest about the ribs and back. There was orthopnea and a constant dry, harassing, unproductive cough. At times it seemed as though she would suffocate during these paroxysms. Her voice suggested vocal cord paralysis, but examination showed that the cords functioned normally.

P. E.: A rather pale woman of spare build and good intelligence. The pupils reacted to light and accommodation. The teeth had all been extracted.

Lungs; no abnormal respiratory sounds except a few piping rales. There was a small area of dullness at the 4th and 5th dorsal spines on the left side.

Heart; apex 9 cm. from the midline in the 5th space. A slight heaving impulse was suspected to the left of the upper sternum. The aortic impulse was suspected to the left of the upper sternum. The aortic dullness seemed a little wide. There was no valvular disease. The pulse was 80; B. P. 120-80. Nothing abnormal was found in the abdomen, nor in the urine. The knee reflexes were obtained. The blood Wassermann was negative. It was also negative in the son and in the last husband.

X-ray report September, 1921, was: Lungs negative. Diapragm high on the right side. Heart: Transverse diameter of arch increased. I might add that the arch was increased to the left and not to the right or upwards.

During 1922 and 1923 she had to have opiates constantly on account of her suffering. Dyspnea grew worse and she wasted to a skeleton. The saliva constantly flowed from her mouth and the pains came up about her throat. The air entered the left lung with a whistling sound, and there were a few rales. The hands were swollen and cyanotic, the left more than the right, and there was edema of the feet and legs. For many months there was a scanty bloody discharge from the vagina. The cause was not determined. The pain in her side was constant and unbearable. Large doses of morphine and hyoscine gave only partial relief. Then gradually, about two months before death, she began to improve slowly. She could swallow quite well again, her cough and dyspnea were much less, and the pain only required a small dose of opiate once a day. She put on weight and did light work about the house. The swelling in the left upper chest that had shown a marked pulsation, was now only slightly noticeable. Then suddenly, on October 6th, she had a sharp, violent pain in the left side, her breathing became noisy and very difficult; she was cyanotic and markedly prostrated.

When I saw her at this time she was propped up with pillows, very dyspneic, with noisy respiration, and spoke in a whisper. Her body was bent to the left and the respiratory excursions on the right side were greatly exaggerated. Cough was incessant. Half a grain of morphine every 2 or 3 hours only gave her partial relief. She was cyanotic; breath sounds nearly absent over left lung; whispered pectoriloquy; high pitched tympany; right side normal.

Heart showed no change except increased rate. The pulsation to the left of the upper sternum was more noticeable than at the previous examination; i. e., during her period of improvement. She failed rapidly and died October 10, 1923. No blood was ever expectorated or vomited and there was no evidence of internal hemorrhage.

Antemortem diagnosis was aneurysm of the descending aorta, the sac obliterated by an old clot; erosion of the upper dorsal vertebrae; left pneumothorax.

Postmortem (Dr. W. W. Waite) showed normal heart; large aneurism of ascending, transverse and descending portions of aorta, filled by old clot; erosion of fourth, fifth and sixth dorsal vertebrae; the intervertebral cartilages were intact; left pneumothorax.

MYXEDEMA

(Presented before the Medical and Surgical Association of the Southwest, at El Paso, Dec. 13, 1923)

This lady is 52 years of age, married and has one child living and well. Six others died in early life. There were no abortions or miscarriages. She had rheumatism about 16 years ago and now has mitral stenosis. She was first seen about twelve years ago. At that time she had albuminuria, swelling of the face and dropsy. I diagnosed parenchymatous nephritis and expected a fatal termination. It was only after she had disappointed me in that prediction for about four years that I began to suspect there was something wrong with my opinion. I was writing a paper on the thyroid and all at once it dawned on me that hers might be a case of myxedema. I made inquiries and located her and found her condition as shown in the illustration (Fig. 3). She was so weak she could hardly get about the room and spent most of her time in bed. She suffered intensely from the cold and even warm air made her teeth ache. At nights she could not keep warm in bed. Her temperature was a degree and a half subnormal and her pulse 60 per minute. Her skin was yellowish, pale, rough and dry. The hair was scanty on the vertex, axilla and pubis. The eyelids were swollen, the ears thick, and the lips twice their natural



Myxedema, before treatment.

size. There were fat pads under the chin, above the clavicles and in the axillae. The lower limbs were much swollen and edematous. Her mind was very sluggish. She spoke in a slow monotone and she continued until interrupted. No doubt the peculiar voice was due to muscular weakness and infiltration of the vocal cords. She complained of much headache and neuralgia.

This is the extreme picture of hypothyroidism. Pain is a common symptom and many cases pass under the diagnosis of chronic rheumatism. It has sometimes simulated gallstone colic. Others, on account of the cardiac weakness, are diagnosed chronic myocarditis. When one recalls the pathology of myxedema it becomes plain that its symptoms may be almost as varied as those of syphilis. The peculiar deposits and infiltrations of mucin may affect the brain, the heart, the bladder wall or almost any tissue of the body.

The case here reported made a rapid recovery on one grain of dessicated thyroid three times a day and she has continued that dose for the last eight years. She has literally been rescued from hopeless invalidism and death by this simple treatment.

I have seen in all four well marked cases of myxedema in El Paso. The one here reported was mistaken for nephritis. As some albuminuria is often present, this is a common mistake. A second case was passed as chronic rheumatism for a long time. The diagnosis of myxedema was made on the parchment like dry skin, the peculiar voice, slow pulse and subnormal temperature, and the clinical improvement on one grain of thyroid three times a day.

A third case was a fat sleepy woman with uncontrollable menorrhagia. Such cases are often cured by thyroid, as she was.

The fourth case was an obese girl of 13 years with a swollen face and almost complete obstruction of the nares. An operation for relief was being considered. She made a rapid recovery on thyroid.

HYPOPITUITARISM, FROELICH TYPE

(Presented at the Medical and Surgical Association of the Southwest, at El Paso, Dec. 13, 1923).

Boy, 17 years old, came to me in March, 1923, because he was too fat. Quit high school because they made fun of him all the time. He has never shaved. He began to get fat at ten years. At 14 he weighed 165 pounds. He now weighs 220 pounds. He likes sweets but his diet is chiefly milk, eggs



Hypopituitarism, front and profile.

anl meat. He says that he eats more than the rest of the family. He was a bed wetter until a year ago. He does not mind hot weather. His hair falls out a good deal.

He is 5 feet 5.5 inches in height. (Figs. 5 and 6.) His torso measure is greater than his legs, and his span is less than his height. The teeth are well set and normal. The distribution of fat is of the Froelich type as in the previous case, but the face is rather full, the nose a little flat, and the lips rather thick. He has marked genu valgum and the pubic hair is of the female type. His pulse is 50 per minute.

He was put on thyroid and pituitrin one grain each three times a day and hypodermics of pituitrin three times a week. He lost 10 pounds in a few weeks and then quit treatment. There is probably some thyroid deficiency in this case and plainly the anterior lobe of the pituitary has functioned better than in the other case described above.

"CERTAIN NECESSARY FUNDAMENTALS UNDERLYING THE DIAGNOSIS AND TREATMENT OF TUBERCULOSIS"*

FRED. G. HOLMES, M. D., Phoenix, Arizona.

Splitting hairs over refinement of technic in diagnosis or treatment of tuberculosis does not appeal to me when the basic handling of the case is essentially wrong. The poor unfortunate is not given a gambler's chance for his life in many a doctor's office from the time he walks in, an incipient case, until he is beyond help.

As you all know, we have no specific for tuberculosis. It is the most curable of all the serious diseases—much more so than most of the forms of heart trouble, kidney trouble or cancer. However, we are losing a far greater percentage of patients who have a chance to get well than in any of these other diseases. If we treated our acute appendix cases with as much indifference as we do our tuberculosis, the appendectomy would soon be a rare operation, and patients would all be disciples of Mary Baker Eddy.

Why are we having this large percentage of failures? I believe the average doctor has at his command the knowledge which would inestimably raise the standard of the treatment of tuberculosis if he would only apply it. The average doctor is not as ignorant on the subject of tuberculosis as one would be led to expect from his actions.

For instance, the sputum test for the tubercle bacillus. We have known of this test for almost fifty years, and yet more than half the patients who come to my office, chronically ill, with cough, afternoon temperature, etc., have never had their sputum examined, even though they have been under the care of doctors for years.

The stethoscope was invented by Laennec about a hundred years ago, and yet there are many doctors who still prefer to listen with the naked ear over the undershirt, or even through the coat at times. I have seen several patients this winter who have been treated for months and their doctors have never listened to their chests in any way whatsoever.

Since in the nineties it has been very definitely established that the proper treatment of a case of tuberculosis running a temperature, with other signs of intoxication, is by rest. We find scores of patients in Phoenix with high temperatures, spitting blood, etc., exercising regularly, irregularly or any old way, under the advice of supposedly capable physicians.

Why this discrepancy between what we all know and believe, and the way we act? Why are we not all getting the results which are reported by some of the fine workers in this field who are no better equipped in education or environment than we are?

The two fundamentals which are more neecssary than anything else, in my opinion, are, first, honesty on the part of the physician; and, second, the obtaining of an intelligent cooperation on the part of the patient.

Of course there are a number of other reasons which apply to individual cases, such as lack of finances, poor living conditions, poor climate, worry over business, etc., but every case, rich or poor, incipient or advanced, is influenced by the two essentials mentioned.

When I speak of honesty, I feel that any man is as good an authority on that subject as another. There are no grades of honesty; a man is either honest or dishonest, and if he is honest, no man can be more so.

Let us measure up some of our actions and see if we have treated our patient honestly.

The very first thing is the making of an appointment, and often the pa-

(*Read before the Thirty-third Session of the Arizona State Medical Association, at Phoenix, April 24-26, 1924.)

tient's whole future is jeopardized at that time. The appointment is made for fifteen minutes, usually. We who have done any work at all in tuberculosis know that a proper history can not be taken, physical examination made, and instructions given to the patient in the short period of fifteen minutes. Many doctors, in order to clinch this time limit, have their office girl ring their bell so they can better show their patients that it is necessary to terminate the interview, and that there is someone else waiting. It is just as sensible to expect a man to operate for fifteen minutes and stop, regardless of the condition of his patient, as it is to expect to handle a tuberculous patient and stop by the clock.

What are some of the effects of this short primary appointment? First, poor histories. The diagnosis is either made or lost, often times, on the history. More errors in diagnosis are made through poorly taken histories than through physical findings.

If the history is to be of value, it must be written down. It has been asserted by the Trudeau Sanitorium that a doctor cannot carry over fifty cases in his head. If they exceed that number (and with many doctors it is a much less number), the whole thing blurs, and he has but an inaccurate knowledge of any of them.

But writing it down takes time, and therefore the majority of doctors in this town are not doing so. I have it on good authority that fewer than ten doctors in the city of Phoenix are keeping any records whatsoever, other than financial. Some doctors have a very elaborate system of bookkeeping, collections, etc. If some of this energy were spent in properly diagnosing and treating the patients, there would not be so much trouble in collecting the bills.

A properly taken history, properly recorded, is there for future reference, and must be used many times in the subsequent treatment of the patient. On the same record sheet, the physical examination may be recorded. If the physical examination is properly made, it can be definitely recorded, and this can be done in a few minutes. The recording of the findings would take only one-tenth, perhaps, of the time spent in making the physical examination, and yet if this is not put down, it is no guide for the future.

Not so long ago a woman came into my office and upon inquiring who had been looking after her, she gave the name of a very prominent physician. From her statement to me she had been examined from time to time, but no record was kept. Each time she was told she was doing a little better than previously. One day the doctor failed to recognize her at all, and started to tell her of a proposed operation on the foot, based on information from an x-ray film of another case. Before she could stop him, he had put his foot into it, and when he finally understood who she was, he gravely examined her and told her that her chest was improving, as usual. She left the office feeling that he was absolutely dishonest, and of course did not return. Can you blame her?

The treatment of tuberculosis differs from most other diseases in that the course is influenced very much more materially by what the patient does. A case of diphtheria, pneumonia, typhoid fever, etc., is so sick that there is usually very little difficulty in getting him to cooperate. He is compelled to stay in bed on account of his sickness, and the things we do for him either get him well or he dies in a short time, regardless of his cooperation. However, in tuberculosis this is very much changed. A certain number of cases are going to die anyway, no matter what they do; a certain number of other cases are going to get well, regardless of their behavior. However, in between these two small groups is the vast majority of tuberculosis cases where the disease is absolutely influenced by what they do. That being so, we must be in a position to advise them. If a case shows continued progression, a still more careful regime must

perhaps be instituted, or pneumothorax, or what not. How are we going to know how to advise the patient if we can not remember his previous condition? A carefully taken history and examination, properly recorded, is appreciated by the patient, and it lays the foundation for that confidence and cooperation which are absolutely essential in the handling of the case.

Having gained the confidence of the patient, you have gone a long way towards getting cooperation. Patients differ greatly in their ability to cooperate. I believe it is often more important what the patient has between his ears than what he has between his shoulders, with regard to his recovery.

Often an advanced case of tuberculosis will make an arrest, whereas an incipient case will progress and die. This influence on the course of the disease is usually through what the patient himself does, so that the physician is placed in the role of teacher, in attempting to sell to his patient the correct line of procedure.

A few days ago a patient came under my care who had left a sanitorium in another state. Upon inquiring as to why he had come here, he said the rules and regulations were too strict, and that they compelled him to stay in bed. He was obviously a bed case. I thought I would try to see what I could do to sell him the idea of bed rest. After a half hour's talk with regard to the reasons why we thought bed rest was necessary for a case like his, he was willing and anxious to go to bed. He was placed on a regime of absolute rest, not even being allowed to go to the bath room. This was even more strict than what had previously aroused his animosity, but now he seems contented enough.

Cooperation may be obtained with education, in most cases. A patient will go an unlimited extent in following out an idea, once he has grasped it.

I will never forget a patient whom I saw in the fall of 1922. He had a long, extended history, running back over a period of five years, in which he had been up and down a great deal, in a sanitorium practically all of the time, on a semi-bed rest regime. He was desperately ill, and it seemed that desperate measures were necessary. We sold him the idea of complete bed rest. He did not sit up for eight months; he was turned over in bed by his family, with the aid of a sheet, even at night; food was cut and placed in his mouth, and he was not allowed to see visitors or write letters. He followed this course for eight months, and when finally given some privileges, it was only on the suggestion of his doctor.

I simply mention this case to show the extent to which you can sell your ideas to your patients, if you believe in them yourself, and will take the time to secure their cooperation.

If you accept the role of teacher and ground your patient thoroughly in the principles of rest, you have a stony path ahead unless you are willing to abide by your teachings. It will be an interesting piece of moral gymnastics if you can then have your bed patient get up and dress, take his carefully recorded pulse and temperature record, and come several miles to your office in order to report that he had had a higher pulse and temperature after his last trip to the office.

Many doctors say that they have not time to make home calls. The telephone would be almost as effective for the weekly reports, and a charge could be made for it. Most of these patients are poor, at least if they are not poor to start with, they become so before they have finished their cure. To subject them to the expense of frequent office visits not only robs them of much of their chance of recovery, but what is more, of their very milk money.

My jangling of the family skeleton may not be of a scientific nature, but it is my firm belief that the discussion of some of the familiar precepts in the treatment of tuberculosis may be of greater value to us in the handling of the patient than a discussion of

some refinement of technic applicable to only a few patients.

DISCUSSION

DR. WATSON: When I hear a paper such as Dr. Holmes has given us occasionally, it seems to me a good thing. He has certainly pointed out some particular faults. The only thing, however, which I want to emphasize that he particularly had in his paper is the importance of a careful history taking and diagnosis of tuberculosis. That applies, of course, to other diseases, but particularly is that true of tuberculosis. I think, if I had to depend upon any one thing to make a diagnosis of tuberculosis, I would rather have a carefully taken history than anything else, unless it could be, of course, a sputum examination. We are all too much inclined to be careless about taking histories of tuberculosis and, outside of tuberle bacilli in the sputum, sometimes it is absolutely impossible to make a diagnosis of tuberculosis without a careful history. They can tell you of afternoon fever and all sorts of symptoms, you can examine your patient carefully as you may, but it is the carefully taken history from which you conclude that that patient has an active tuberculosis and needs to be treated.

DR. WILSON, Prescott: Mr. President, as Dr. Watson has said, it is rather timely to discuss the diagnosis of tuberculosis as Dr. Holmes has so ably presented it, but, after you have made your diagnosis, your troubles have just commenced. In our work in Arizona, the vast majority of cases are not difficult to diagnose. They come here at a time when diagnosis is a very simple matter. The average case coming here is coughing and spitting and has positive sputum. There are border line cases. There is an occasional early case that requires a little bit more care, but I find that the ordinary case presents no difficulty in diagnosing active tuberculosis. After you have made your diagnosis, your troubles have just commenced. I think, as a general rule, no class of patients in the world in any known human malady require the patience to treat that pulmonary cases of tuberculosis do. To follow a case of tuberculosis over months and months and sometimes years requires on the part of the physician a disposition which is immune to disappointment and immune to all those things that the ordinary physician hopes for and sometimes he almost arrives at a point where he is tempted to descend to subterfuge. Dr. Holmes mentions very clearly the question of being honest with patients. Honesty is all right, but sometimes you have got to carry these people so constantly—so thoroughly on your shoulders—you have got to carry their troubles so completely that it hardly pays all of the time to be perfectly honest with them. I don't mean to be dishonest with them, but you sometimes have to resort to subterfuge to buck up their morale and, after you have carried these patients for a while on your own shoulders and you have seen the fool things that they do and the way that they have—that they buck against your routine you have ordered, sometimes you get very much discouraged, but I do not believe that the ordinary case of tuberculosis is more influencd, as Dr. Holmes has said, by his first conversation with the physician in regard to the discussion of tuberculosis and what he has and what he ought to do than by any other step he takes. He either gets off on the right foot to begin with or it is very hard to have him recover his lost ground later on, but I don't believe we should censure the doctors too much. I believe that the ordinary case of tuberculosis is a very, very difficult animal to manage at times and they very often get the best of advice and turn around and do just the contrary, so I think the burden should be evenly distributed between the shoulders of the physician and the shoulders of the patient.

DR. HOPKINS: I would like to ask about what percentage of tuberculous patients coming to this section of the country make recovery.

DR. CARSON: One of the greatest mistakes, I believe, that we general practitioners make in treating tuberculosis cases coming from other states is taking it for granted your trouble is tuberculosis, as the doctors back in Wisconsin or New York or Maine or some other place say. I just got through with two cases that were diagnosed—one in Wisconsin and one in New York—tuberculosis, and they came here practically penniless. Neither one of them has tuberculosis; they are perfectly healthy and well and ready to go back; it took me a long time to convince myself it was not tuberculosis, but they are well and I never did find the bacilli, and I think that is one of our greatest mistakes in taking things for granted.

DR. WILKINSON: Can you put a patient on absolute rest for six months or a year and keep up the general muscular tone or circulatory tone? It seems to me that is an important side of the question. I am not sure but what one of the cases Dr. Holmes referred to is one in which I had some interest, one who was put to bed in 1922 on the advice of Dr. Holmes. He had been in various sanatariums and two or three hospitals. He was in the Woodman's Sanatarium at Colorado Springs at one time. I gave this patient vibratory treatments to his vertebral column twice a week during the year he was in bed. Last summer he was up some on an invalid chair, but for nearly a year he never went to the bathroom and the first six months he did not feed himself o rturn himself in bed. Dr. Holmes saw him two or three times during the year and remarked the muscular tone that this young man showed, although he was not the muscular type. The following is a real test of the tone of his muscles after a year in bed; he was a splendid musician and pianist, and he was able to play much better after he got up than when he went to bed, and he told

me that after he was in bed the previous time at the Woodman Sanitarium in Colorado Springs for three months, he was unable to play with any satisfaction to himself or his friends. This patient gained fifty pounds during the year and his pulse dropped from 125 to 80. For the past two years I have been vibrating the spinal columns of my bed patients two or three times a week, and I think it is a great help in maintaining circulatory and muscular tone, as well as improving general metabolism.

DR. WATKINS: As a discussion of this paper, I wish I could quote verbatim the remarks of a bluff old farmer from Oklahoma who was recently in my office talking over the findings by x-ray on the chest of his son. In effect his words were as follows:

"When I think of all the damnable mistreatment and graft my boy has been the victim of, I feel like loading up my six shooter and going back to Oklahoma and shooting every doctor I come across. My boy was sick for a year and went to the best doctors in S——, and was thoroughly examined with x-rays and every way possible, and was told that he had a couple of spots on his lungs, but these were due to asthma, and he would soon be all right. After he had his hemorrhage, they told him that if he would come to a little drier climate he would be well in two months. I do not mind the money that I have paid out, though I am not a rich man, but to think that I have lost all this time and perhaps the only chance my boy has to get well, by listening to these men who pretended to know what they were talking about."

This patient has an extensive, old, fibrous, cavernous tuberculosis, with recent conglomerate, parenchymatous extension.

It is not conceivable that these doctors in Oklahoma did not realize that this boy had tuberculosis, for Oklahoma doctors are no worse than doctors elsewhere.

DR. HOLMES (closing): I prepared this paper more or less just because Dr. Harbridge brought pressure to bear, but since he has made me do it, I said that I am going to say what I think, and I believe you will agree that perhaps I did say what I think. You need not tell your patient lies. The question has been raised with regard to telling the patients their real condition. I did not mean that in order to be honest with ourselves and honest with our patients that you must tell them the whole truth all the time. You can get around it in some way so that he will get the idea, but in the event he does not go under treatment properly, then he should be told the truth in bald enough terms so that there can be no misunderstanding. We are all more or less at fault in some cases. I expect that many of you can recall cases which I have been remiss in some of the things that I have mentioned, and it may be just as valuable to me to prepare this paper as it is for others to hear it. Regarding the ability to cooperate, I tried to bring out very strongly the fact that patients differ absolutely in their ability to cooperate. To some patients you might say to them, "Brother, you are going to die if you do not get down to business," and they shake it off like a duck does water and go right ahead, while others are very amenable to the advice of their physicians. Of course, you cannot blame the physician if his patient does not have enough between the ears to appreciate and cooperate; that is no discredit to the physician. Regarding percentages of recoveries, I cannot say. Our physician friends in the East are so fond of telling their patients as a parting shot that they need no doctor. This is like starting a man out to hunt big game and giving him the poorest gun possible and poor ammunition, and when he gets ready to leave, pouring a little water on his powder, just to make doubly sure that he will not accomplish the object for which he set out. The home doctors keep them until they are moderately advanced cases, and then quite suddenly discover that they have tuberculosis, then have them sell off their property or business overnight, at a tremendous sacrifice, and then come to Arizona to get well on the climate. Regarding the vibration of the nerve centers, I do not know enough regarding its effect to be able to say. I do know that we have very definitely sacrificed the body for the sake of the lungs when we put the patient to bed. That is what we expect when we place them on the absolute regime of rest. You can build up the body if you can get the lungs in condition. During the war, where men were in bad shape so far as bodies were concerned, we built them up and many of them weighed more and were in better shape than they had been in years, simply from a few months' training, but we could only do this when the lungs were in shape to stand the strain. A definite diagnosis is essential and the diagnosis of tuberculosis should not be made or accepted without study. I think the most startling case I have seen recently is a woman who has been sick for twenty-nine years, with discharging sinuses, empyema, etc., which were supposed to be tuberculous. After twenty-nine years, during which time she has been in some internationally known clinics, where she was picked to pieces in various ways, both physically and financially, through the cooperation of the Pathological Laboratory, we have made a definite diagnosis of actinomycosis. Twenty-nine years with an incorrect diagnosis seemed an unreasonable delay to the patient, and even the most conservative of us must admit that she was entitled to a little speeding up of the diagnosis. There are many patients sent to this section of the country with mistaken diagnoses, so be on your guard and correct them.

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Thirty-seven million dollars of new business in two years operation—about $110.00 for every man, woman and child in Arizona—is the record of the Industrail Congress.

FORMATION

Under stress of disaster the successful leaders of every industry were assembled in December, 1921. Frank expressions of the difficulties of each were made in open meeting and pledges of cooperation were made for mutual help. Never before was dependence of one industry on the other so forcibly demonstrated.

This meeting elected representatives, three from each branch of endeavor, to act as a state board of directors to determine methods to better conditions.

The state was grouped under six divisions:

Agriculture.
Livestock.
Mining.
Public Utilities.
Professional.
Business and Financial.

The men elected on this board had all been successful in their individual lines—and they were asked to give to the state the benefit of their business ability and judgment to solve the economic difficulties facing us.

POLICIES

The directors after much study laid down six principles as a basis for operation.

(1) To help existing organizations to operate to fullest efficiency for their individual members.

(2) To create markets nearest the point of origin for all products.

(3) To determine the excess production over local needs and distribute this excess.

(4) To encourage highest quality of production to minimize effect of outside competition by quality, not by price cutting.

(5) To crystalize public sentiment on constructive problems by presentation of facts and exchange of ideas between organizations.

(6) To help ourselves and our state by creating a loyalty to our institutions.

WHAT IS THE ORGANIZATION?

The Industrial Congress has provided a clearing house or point of contact for all state, civic, business and professional organizations. It does not replace or perform the work of these organizations, but simply provides a means for them to present their troubles, not to their members, but to all other organizations of the state.

EARNING POWER

The variations in business conditions have a decidedly different effect on the medical profession than on any other branch of service in society, from the standpoint of gain or profit. During business depressions, illness calling for medical service is as great and sometimes greater than in periods of prosperity. The raw material or basis of earning power remains constant regardless of its ability to pay. The financial success of the doctor does not, therefore, as in other

branches, depend on the supply oi work, but on the ability and willingness of the patients to pay. Collections are the measure of financial success to the average physician.

The improved financial condition of Arizona in 1923 has had a decided effect on collections for professional services. The increase in collections of delinquent accounts reached 50 per cent of normal and is now reported up to 75 per cent of normal for the first quarter of 1924. This increase is in the face of heavy payments on agricultural indebtedness, the latter having been reduced nearly 50 per cent in the two and one-half years of operation of the Industrial Congress.

SOURCE OF SUPPLY

Since the individual, particularly the family, is the source of supply for the medical profession, the doctor is primarily interested in growth of permanent self-supporting population. The Industrial Congress has brought many hundreds of new people into Arizona. In the past six months alone about $500,000 of new industrial investment has been made requiring high class operators. Three additional new industries are under consideration.

The farm population depends entirely on the earning power of an acre of land. The Industrial Congress has increased that earning power by providing markets for all products grown. In 1921 about 29 per cent of all farm stuff grown in Arizona was a total loss to the farmer. In 1922 and 1923 practically everything produced was sold at a price equal to or better than that received in any state of the Union. This increased earning power of land will eventually bring intensive farming with great increase in population.

PUBLIC CONTACTS

The medical profession has made great strides in public health and in educating the children in public schools. Much more can be done in acquainting the public with problems of the profession and in increasing standards. The Industrial Congress, as a clearing house, offers opportunity for the profession to meet the leaders of every industry as a means of gaining their support and cooperation.

To know our fellows better, to understand what they are doing and striving for other industries, to actually help and be interested in the prosperity of our neighbor, is the results we hope to gain by a united Arizona.

DR. LEON JACOBS

The organized medical profession of Arizona has lost a faithful worker, and his community one of its most prominent medical men, in the death of Dr. Leon Jacobs of Yuma, Ariz. Dr. Jacobs, for many years, has been the secretary of the Yuma County Medical Society. His professional work has been confined mostly to the Indian Service, having charge of that work on the reservation in Yuma County, Arizona, and Imperial County, California.

Dr. Jacobs was apparently the victim of a man who was mentally unbalanced, this man walking up to him on the streets of Yuma and shooting him without a word of warning. It was hoped for a time that the wound would not be so serious, but this hope was not borne out, and Dr. Jacobs succumbed shortly after the assault.

PREPARATION OF MEDICAL PAPERS.

Any influence which tends to lead doctors to use more care and thought in preparing medical papers meets with a hearty welcome from the editors of medical journals. The smaller the journal the more personal care must the editor give the material published in it ,and many an undeserved gray hair or wrinkle of age is the result of carelessly prepared medical

papers. Very few papers come to this journal that do not have to be read word by word, with numerous corrections of punctuation, spelling and sentence construction.

We, therefore, welcome the assistance of one of our advertisers (Corona Typewriter Company), in the monthly publication of one of the rules of correct manuscript preparation.

If a medical paper or report is worth the paper it is written on, it is worth careful preparation, and that means it should be typewritten, with correct spelling, punctuation and paragraphing, double spaced on standard size paper, with ample margin. Authors, or correspondents, are asked to watch for the ads of this concern and follow the published suggestions.

YAVAPAI COUNTY (Ariz.) MEDICAL SOCIETY

The Yavapai County Medical Society and the medical officers at Whipple ended their 1923-24 Postgraduate course with a delightful banquet at the Owl, Tuesday evening, May 6th. Group III, of which Dr. Louis Fales was team captain, as winners of the season's contest, were the guests of Groups I and II.

Never, in the history of the Mile High City, has a more delightful banquet been served to a bunch of medicos, and Group III acknowledges with sincere appreciation the generosity of Groups I and II, first, in the matter of the liberality of their marks which materially assisted Group III to win, and second, in the big feed which crowned their victory.

During the banquet all animosities were buried and the most adipose forgot to count his calories.

MENU

Fruit Cocktails

Olives Celery

Roast Turkey With Dressing

Parisian Potatoes Asparagus Tips on Toast

Cranberry Sauce

Hot Rolls

Combination Salad

Mints Nuts

Frozen Custard Cakes

Coffee

After the above menu had begun to alter the metabolism of each medico present, he was called upon for a speech, Dr. Loewy acting as toastmaster. No matter how eloquent or scientific the remarks, they all centered on the text, "The last shall be first." There were just as many explanations of ho wit happened as there were speakers. The winners were the butt and quip of the other two groups, and when Group III had run the gauntlet, the Tea Pot Dome scandal would have appeared picayunish in comparison. However, Group III admitted that they could not help scintillating so conspicuously, as it was their gift from the gods.

The consensus of opinion was that, with a few improvements, the result of more mature experience, "Our Plan" would be again put into active operation again in the fall. We are looking forward with eager anticipation to another year of postgraduate work with the Cabot case records to spur us to an energetic review of those things "which I have loved long since and lost awhile."

Those attending the banquet were Doctors Looney, Loewy, Yount, Allee, Fales, Gatterdam, Fennell, Wilson, McCarty, McWhirt, Buck, Christian, Saunders, Mattice, Rene, Walker, Thomas, Malone, Linn and Allen.

C. E. YOUNT,
Secretary.

DR. J. M. GREER of Mesa left May 10th to be absent three or four months in postgraduate work. After attending the Ohio State Medical Association, and the American Association in Chicago, Dr. Greer will spend most of the summer at Dr. Crile's clinic in Cleveland, studying surgery in this great surgical clinic.

DR. R. W. CRAIG of Phoenix left for several months' tour of Europe the latter part of May. There is a persistent rumor that he was married in Los Angeles on the eve of departure and that the trip is a honeymoon tour. He is expected back in Phoenix this fall.

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ST. JOSEPH'S HOSPITAL (Phoenix)
STAFF MEETING
May 15th, 1922

The final meeting of the spring season for St. Joseph's Hospital, Phoenix, Ariz., was held in the lecture room on Thursday evening, May 15th, at 7:45 p. m. In the absence of the chairman, Dr. Wylie, the vice-chairman, Dr. Willard Smith, presided. Eighteen members of the staff were present.

The following cases were discussed:

CASE 1.

No. 4851, presented for a discussion of the application of insulin in diabetic gangrene.

Male, age 64, entered March 16th, with working diagnosis of diabetic gangrene. Personal history briefly and imperfectly given, but no physical examination recorded, so that the extent and duration of the gangrene is unknown. Urine sugar was 4.5% on the 16th, gradually decreasing to none on the 22nd, thereafter showing only traces. Blood sugar was constantly .21% for five examinations. Treatment was dietetic until the 26th, when insulin was given, the use of violet ray on the foot being recorded until time of operation on the 28th. Two toes were amputated on the 28th, but gangrene continued to spread, nephritis and septicemia apparently being the terminal factors in death on April 7th.

Discussion: Physician in charge of case was not present to answer questions. Attention was called to the imperfect clinical record, and complete absence of physical examination. Although urine sugar disappeared, sugar continued to be present in the blood without change in spite of all dietetic regulations; for this reason, the failure to give insulin earlier requires some explanation. When insulin was started, it was not given in doses sufficient to lower the blood sugar. Attention was called to Dr. Bertnard Smith's statement that he would never again operate for diabetic gangrene, as the gangrene could be stopped by proper and early administration of insulin; if not amenable to this treatment, operation would avail nothing.

The hospital now has a competent dietician, and with the clinical laboratory facilities for rapid determination of urine and blood sugar, diabetic cases can be handled intelligently and scientifically, but the staff members who are to handle such cases must inform themselves thoroughly about insulin, its effects, the rationale of its administration, and the effects to be expected. It is a problem for the internal medicine men.

CASE 2.

No. 4839, female, age 39, married. Another case with interesting features which are not recorded in sufficient detail to give an intelligent picture of the case.

Stated to have awakened a month ago with discomfort in the right side, which has been continuous since, and has recently extended posteriorily. There is some cough, no expectoration. Only findings on physical examination which are recorded are the statements that there is tenderness in right iliac region, especially over the appendix and some rigidity of right rectus muscle; white count was 20,700, 78% polynuclears. There were evidently more findings, because request was made for x-ray of chest, on the statement that lung abscess or subphrenic abscess was suspected.

X-ray showed no lung densities, and no evidence of subphrenic lesion.

When patient was operated, the pre-operative diagnosis recorded was retrocecal appendix with abscess or a peri-renal abscess. No physical findings relative to the kidney are recorded and the symptoms on which this suspicion is based can only be conjectured.

Lumbar incision was made, and retrocecal appendix found and removed; no pus or evidence of acute inflammation being found here, search was made in kidney region; there peri-renal induration and adhesions were found, and finally pocket of pus lying internal to the kidney and somewhat anterior to it was discovered, evacuating two ounces of greenish pus, which was shown by bacteriological examination to be staphylococcic.

Patient made an uneventful recovery.

Discussion: There must have been some symptoms indicating the advisability of a lumbar incision, aside from those recorded, because the surgeon would not make a lumbar incision if he expected to find an appendiceal abscess. It would be interesting to know what the kidney symptoms were, but the surgeon operating the case was not present.

Several similar cases were recalled, and it was suggested that the primary focus of this kidney infection was not discovered, and that it was probably metastatic. It is not always possible to find the primary focus, but the location of the pus would make it necessary to investigate the spine for possible tuberculosis, as two cases with almost exactly similar abscess pockets were found to arise from the spine.

(Note:—This is a summary of the discussion which was participated in freely by the doctors present).

CASE 3.

No. 4891. Male, age 34. The recorded history of this was also very incomplete, but was supplemented by information given by the attending physician. Patient was mechanic in garage; has been free user of alcohol; was in hospital about a year ago with a pustular infection which was slow to heal. On March 30th he opened a small pustule on back of hand with his pocket knife; 24 hours later he had a deep lymphangitis to the axilla with thrombosis of brachial vein. On April 2 he was brought to hospital, and

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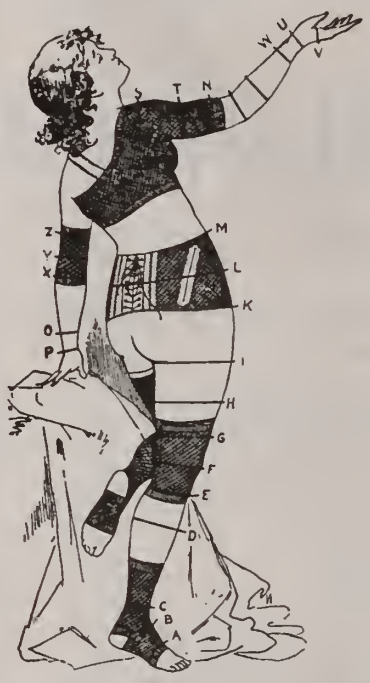
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axillary abscess drained; by this time he evidently had a septicema, with several areas of cellulitis, white count of 16,200, 84% polynuclears.

Patient was first treated by compresses and chlorazene, and when these evidently were of no avail, mercurochrome was given on Apirl 5th—30 cc. of a 1% solution, and on the 6th, antistreptococcic serum, but death occurred that same day.

Discussion: (By attending physician and staff members). Patient was in bad shape on entering hospital; clinically it was a septicemia and probably streptococcic, though no blood culture was made. Examination of the pus from the abscess probably would have shown what the infection was, and blood culture should have been made. The effect of the mercurochrome was such as to make it seem inadvisable to give further doses of this, dyspnea being very marked and temperature subnormal with evidence of heart failure. The antistreptococcic serum probably was given entirely too late for any benefit to be expected.

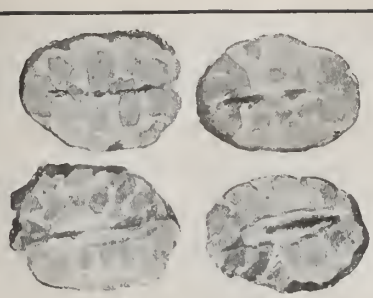
Several other cases were recalled by the physician having this case in charge, several of whom were given antistreptococcic serum with very good results and prompt recovery. Question was raised about the safety of mercurochrome, and the fact that it produces reactions when injected into the kidney pelvis cited. Attention was called to the fact that gentian violet has been recommended as the preferable drug in infections by Gram positive organisms. In this particular case, the mercuchrome was given late and effect was hardly to be expected. Patient entered hospital on April 2nd, with evident septicemia, and mercurochrome was not administered until the 5th. Since hours count in a streptococcic septicemia, either the serum or mercurochrome were indicated, if to be given at all, on the 2nd. Drainage ofthe axillary abscess could have been deferred.

CASE 4.

No. 4891, male, age 61. Another imperfect record. The chief complaint was a very severe and peculiar pain in the back, which is not described in the record. Gives history of "bronchopneumonia six weeks ago; was told when the severe pain started first was lumbago, then that a vertebra was out of place; pain has since been increasing steadily." (Note: this is the entire recorded description of the patient's symptoms).

Patient was brought to the hospital and x-rayed, showing a forward displacement of the fifth lumbar vertebra (spondylolisthesis). Manipulation of back reduced this and pain was partially relieved.

There was an enlarged prostate and urethral stricture and detailed investigation of the kidneys was undertaken. In the Mosen-


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thal urinary tests, there was insufficient range of specific gravity (1005 to 1014), with dropping of gravity at night with nocturnal polyuria. Blood showed sugar .17%, NPN 35 mgm., urea 28 mgm., and cholesterol .15%. Spinal fluid was negative. The urinary and blood findings indicated a functional rather than an organic condition, and was probably due to back pressure from enlarged prostate and urethral stricture. Pain gradually subsided, and patient was discharged, much relieved.

Discussion: The significance of the blood and urinary findings were discussed with reference to the difference between nephritis and back pressure from obstruction. X-ray films showing the forward displacement of the fifth lumbar and the normal position after replacement were shown.

CASE 5.

No. 4945; baby, 4½ mos. old. First seen by physician on night of April 13th. Baby had been sick since night of the 11th, with some sort of bowel trouble, with blood appearing at anus night of the 12th. Sausage shaped tumor was made out in the afternoon of the 14th, and it was suggested that the claim that the x-ray was of value in acute abdominal conditions be tested; the x-ray examination revealed clearly that there was an obstruction and probably an intussusception.

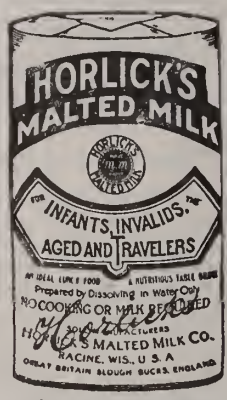
Operation was performed same evening, the intussusception being at the valve and included the terminal ileum, the cecum, ascending, transverse and part of the descending colons, the entire mass being drawn down into the right iliac region by traction from the uninvolved portion of the ileum. At the expense of much force and trauma, the bowel was reduced, being found adherent throughout. Shock proved too great and baby died in a few hours.

Discussion: Relative to the value of x-ray in acute abdominal conditions, this was recently called to our attention by Dr. Keith, of Louisville, Ky., and was tested in this case. While the relations were so disturbed that several errors were made, it could be plainly seen that there was absolute obstruction and probably intussusception.

Discussion: This was free and called forth many experiences with this condition, the surgeon handling this case having had 18 cases with 7 deaths. Question of the advisability of enterectomy and anastomosis came up, and whether it would be better than using much force in reducing the intussusception. One suggestion offered was the possible advisability of doing an enterostomy, with an artificial communication to relieve the patient of highly toxic material within the strangulated bowel, permitting the patient to recover from shock and recover normal physical vigor, and then making a secondary operation for handling the intussusception—perhaps removing it with an anastomosis. This has been done in one case of this surgeon's, with a very happy result.

Ten o'clock the meeting adjourned.

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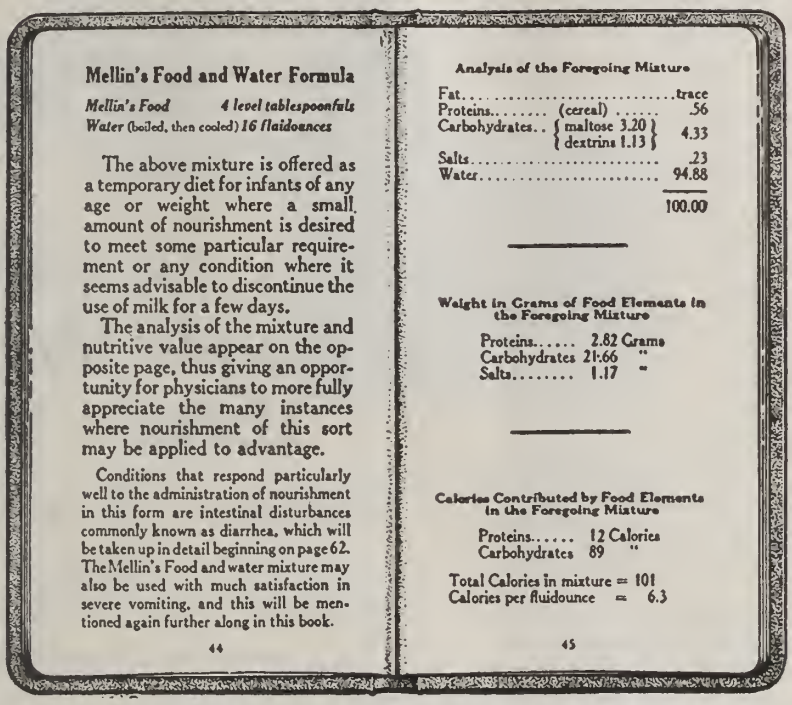
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The analysis of the mixture and nutritive value appear on the opposite page, thus giving an opportunity for physicians to more fully appreciate the many instances where nourishment of this sort may be applied to advantage.

Conditions that respond particularly well to the administration of nourishment in this form are intestinal disturbances commonly known as diarrhea, which will be taken up in detail beginning on page 62. The Mellin's Food and water mixture may also be used with much satisfaction in severe vomiting, and this will be mentioned again further along in this book.

44

Analysis of the Foregoing Mixture

Fat		trace
Proteins	(cereal)	.56
Carbohydrates	maltose 3.20, dextrins 1.13	4.33
Salts		.23
Water		94.88
		100.00

Weight in Grams of Food Elements in the Foregoing Mixture

Proteins	2.82 Grams
Carbohydrates	21.66 "
Salts	1.17 "

Calories Contributed by Food Elements in the Foregoing Mixture

Proteins	12 Calories
Carbohydrates	89 "
Total Calories in mixture	= 101
Calories per fluidounce	= 6.3

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There are eighty pages in this book, every one presenting interesting and useful information relative to the subject of infants' nutrition.

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ARIZONA STATE MEDICAL ASSN.

SECRETARY'S MINUTES

The executive program of the 33rd Annual Meeting of the Arizona State Medical Association opened 9 a. m., April 24th, with a meeting of the Council, S. H. Watson, Tucson, W. W. Watkins, Phoenix, President C. A. Thomas, Tucson, and Secretary D. F. Harbridge, Phoenix. The treasurer's and secretary's reports were submitted to a committee composed of Drs. Watson and Watkins. One p. m., April 24th, the House of Delegates was called to order, a quorum not being present adjournment until April 25th, 1 p. m. Present fourteen members. Dr. Gunter of Globe submitted resolutions commending Governor Hunt in his efforts to protect Arizona from foot and mouth disease now present ni California.

Dr. Neff called attention to the need of a committee being appointed to carry out as nearly as possible many of the suggestions made two years ago by the Federal Government for the care of the mental defective. The following committee was named: Dr. Frederick Holmes, chairman; Dr. W. W. Watkins, Dr. Mary Neff, Dr. H. I. McNeil and Dr. Charles Palmer.

At the next meeting of the House of Delegates and general assembly it was voted to continue the membership in the Arizona Industrial Congress.

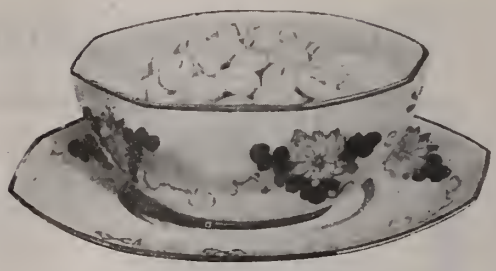
It was decided to hold in the fall a series of public meetings in several of the larger centers. Dr. W. W. Watkins was elected delegate to the A. M. A. meeting, with Dr. Metzger as alternate. The financial report by Dr. Yount was accepted with the recommendation that the treasurer be allowed to pay all bills out of the general fund, refunding as annual dues are paid, thus keeping the Defense Fund intact, large enough to earn about $100 annually. That the treasurer be authorized to transfer $1000 from Defense Fund to savings account (this without loss of interest). The financial statement of the association shows a balance in the General Fund of $659.57; Defense Fund, $3682.24; Savings Fund, $1825.72.

Drs. C. E. Yount and D. F. Harbridge were elected as the Arizona directors of Southwestern Medicine. Dr. Bridge as spokesman for Cochise County Medical Society, invited the Association to meet in Bisbee in 1925.

The following officers were elected to take office at the time of the next meeting: President, Dr. R. D. Kennedy, Globe; first vice president, Dr. Clarence Gunter, Globe; second vice president, Dr. J. J. McLoone, Phoenix; third vice president, Dr. A. D. Wilson, Prescott; treasurer, Dr. C. E. Yount, Prescott; secretary, Dr. D. F. Harbridge, Phoenix.

Meeting adjourned.

D. F. HARBRIDGE,
Secretary.



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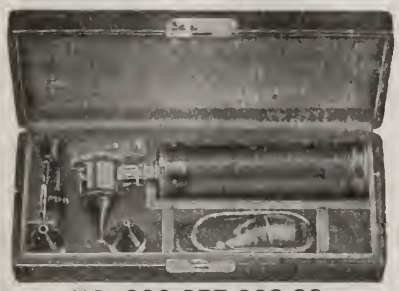
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BOOK REVIEWS

A Mind That Found Itself. An Autobiography, by Clifford Whittingham Beers. Revised edition, 1923. Doubeday, Page & Co., New York City.

From a letter to the author: "You have handled a difficult theme with great skill, and produced a narrative of absorbing interest to the scientist as well as layman. It reads like fiction, but it is not fiction; and this I state emphatically knowing how prone the uninitiated are to doubt the truthfulness of descriptions of abnormal processes."—William James, Professor of Psychology at Harvard University.

The first edition of this book was published in 1908, being the result of Mr. Beers' state of mined expressed in his own words when he finally returned home after three years spent as a mental patient in institutions: "I have decided to devote the next few years of my life to correcting abuses now in existence in every asylum in this country."

From his vision of what might be done resulted the National Committee for Mental Hygiene, which now has 26 state societies auxiliary to it; which publishes what is probably the best journal available on the subject of mental hygiene; which has established clinics, carried on mental hygiene service, investigated institutions, and in every way promoted the improved care of the mentally ill, and educated not only the medical profession, but the public in the idea of preventing many mental diseases by prophylactic agencies.

The book itself describes vividly the patient's contacts with ignorance, social indifference, political depravity, commercialism and medical incompetence, as he suffered, opposed and damned them. His three years of mental breakdown included residence at home, in private sanitarium, in a state institution for the insane and in a private institution in which mental cases were legally committed.

In these places he became personally acquainted not only with some employees eminently qualified for the work they were doing, but also with stupid, ignorant, brutal attendants, and unthinking medical assistants. He lived through all phases of institutional life from the padded cell and straitjacket then in vogue ,to the unsupervised parole of the convalescent.

Thanks to a retentive memory and numerous records surreptitiously written, the story is wonderfully complete.

The result is a classic of human revelation which should be read by every physician.

SIGNS OF SANITY, by Stewart Paton, M. D., lecturer in Neuro-Biology, Princeton University. Charles Scribner's Sons, New York.

Books dealing with the abnormal mind, defective mentality and the psychopathic per-

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sonality are so numerous that an ample library on these subjects is easily collected. But if one were to attempt to fill a modest shelf with books dealing with the normal, in the same field, some difficulty would be encountered.

One volume, however, which would fall in this category is worthy of note as stimulating and authoritative, being moreover eminently readable, brief and practical. No one can read it without having a clearer conception of what is meant when we say that a person is "sane" or normal."

The title of the book itself is intriguing—"Signs of Sanity". The author, Dr. Paton, is a neuro-biologist, and his point of view is that of the scientist who regards the human being as a closely integrated mechanism which must be considered as a whole before a clear and satisfactory conception of its functioning is possible.

Some quotations from the book will be more enlightening than an attempt to set forth its contents:

"The majority of people do not even know that the final test of the sound mind implies sane conduct, not merely intelligent thinking. Sanity measures not only the mental, but the physical and mental qualities that enable a person to face critical situations in life successfully and not merely to sit down and think about it.

"One of the greatest triumphs of biology has been to emphasize the fact that life and the activities of all living beings are processes of adjustment and not states of body and mind.

"The sound body is a well organized body, a body well prepared to act in an emergency; a thoroughly up-to-date, efficient machine. In the sound body the functions of the organs concerned in producing, distributing, storing up and discharging energy all pull together; in other words, are well co-ordinated.

"The final test of soundness or unsoundness of mind is not feeling or thought, but constructive action. Conduct accordingly is the final criterion by which sanity must be estimated.

The book especially commends itself to members of the medical profession who must of necessity glean at the least possible expense of time their understandings of the other sciences closely correlated with medical science.

It might be added that the legal profession would also gain much enlightenment from Dr. Paton's book.

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ABSTRACTS

X-Ray and Radium Treatment of Goitre. G. W. Grier, M. D., Pittsburgh, Pa. The Atlantic Med. Jour., May, 1923, p. 516.

(Note—The paper was read in the Symposium on Goitre before the Section on Surgery of the Medical Society of the State of Pennsylvania, Oct. 4, 1922).

The radiologist intending to treat goitre must first recognize the type of lesion he is to deal with. The prime indication for radiation treatment of goitre is the presence of hyperthyroidism, consequently the best classification is one based on the presence or absence of hyperthyroidism, as follows:

Hyperthyroids—
Adolescents
Hyperthyroids without goitre
Hyperthyroids on basis of old simple goitre
Exophthalmic goitre
Intrathoracic goitre
Without Hyperthyroidism—
Adolescents
Simple goitre
Colloid goitre
Cystic goitre
Intrathoracic goitre
Malignant thyroids

Having determined the presence of hyperthyroidism by clinical evidence and the metabolism test, we next attempt to classify the hyperthyroids. Those without hyperthyroidism should not be radiated, unless malignant, when they may be so treated in conjunction with surgery.

In adolescent goitre, where hyperthyroidism exists, a small amount of x-ray treatment, with proper hygiene, will bring about a speedy return to normal.

In cases of hyperthyroidism without goitre, careful consideration must be given to causes outside of the thyroid which may produce hyperthroidism. If an exciting cause can be found and removed, should the case not return to normal, radiation is preferred to surgery.

In exophthalmic goitre, the individual requirements need to be considered. If there is acute thyrotoxicosis, rest in bed and medical treatment for the time being is the proper course. The average case may be treated with radiation, usually with good results. If there are pressure symptoms from the growth, surgery is to be preferred to radiotherapy. Surgery is also to be preferred in those cases who are unable, for economic reasons, to carry out the radiation or medical treatment over a long period of time, or whose home conditions or intelligence make the proper hygienic treatment impractical. Also, if the patients are pessimistic or have preconceived ideas that only surgical treatment is effective, they should be operated at once.

In hyperthyroidism on the basis of a simple goitre, the hyperthyroidism can be controlled by radiation, but since it will have little effect on the tumor, operation is usually to be preferred.

In intrathoracic goitre, with hyperthyroidism, this can be controlled, but since the radiation usually has little effect on the growth, operation is better when it can be safely done.

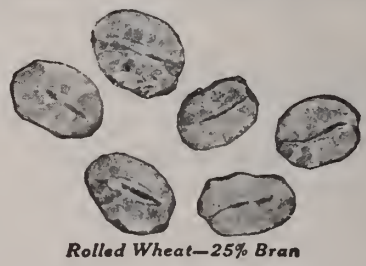
The rationale of the treatment of goitre by radiotherapy depends on the inhibition or abolition of the secretory function of the gland, or even the complete destruction of the secreting cells. Obviously, therefore, the treatment is only indicated when there is an excessive secretion, i. e., a hyperthyroidism. If there is no hyperthyroidism, radiation is contraindicated. Radiation must be supplemented by a careful regulation of the patient's hygiene, especially as regards rest. They must have 8 to 10 hours' sleep each day, with plenty of fresh air and nourishing food. Stimulating drinks are forbidden and meat only occasionally.

X-ray is used on office cases for purposes of convenience only, the action of the two agents being regarded as identical. Radium is used on patients confined to bed.

Treatment is not to be continued indefinitely if there is no improvement. The average case requires about six months for regression to the stage where treatment can be discontinued.

Crush Fractures of the Spine. James O. Wallace, M. D., Pittsburgh, Pa. The Jour. of Bone and Joint Surgery, Jan. 1923, p. 28.

This is a study of 82 cases of fracture of



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the spine, a great majority of which had gone unrecognized and untreated. In 67 of the cases there was history of forcible flexion of the spine, from three types of injury: (1) heavy object falling from above alighting on patient, usually when the spine was already slightly flexed; (2) patient falling from a height striking on the head and shoulders; (3) patient being caught between two objects causing slow forcible flexion of the spine; in the first group there are 45 cases, second group 17 cases and third group 5 cases.

In the 47 undiagnosed cases, the shortest elapsed time was 25 days and the longest 1045 days. In 23 cases there were other fractures outside of the spine. Fracture of the transverse process was the most common injury; fracture of the spinous process occurred in only three cases and of the articular processes in one case.

With regard to pain, there are records in only 60 cases. Of these 30 had back pain and referred pain; 20 had back pain alone; four had referred pain only and six had no pain at all. With regard to other complaints, 23 had paralysis or weakness of legs; loss of bowel or bladder control in 8 cases; sensory disturbances in 4 cases; weak back in 16 cases; stiff back in 13 cases; could not straighten back in 8 cases; could not lift in six cases; shortness of breath in 3 cases; loss of sexual power in 3 cases; nervousness in 3 cases.

With regard to deformity, there is record in 58 cases, and there was deformity in 46 of these.

In 34 cases out of 81, there was dislocation of the vertebra.

All cases had some limitation of motion.

Paralysis was present in 23 cases out of 78. (60).

With regard to location; in the majority of cases, only one vertebra was involved; the series contains instances of fracture of all vertebrae except the 1st and 2nd cervical, 6th cervical and 1st dorsal, the first lumbar being most frequently injured (33 times).

In studying the radiographs it was seen that in most cases the vertebra above was driven against the one below, the latter being crushed, but in 20 per cent of the cases the reverse action occurred, the vertebra above being crushed.

The Use of X-ray in Gynecology, Mary E. Hanks, M. D., Chicago, Ill., Jour. Ia. State Med. Soc., Feb. 10, 1924, p. 45.

The conditions which can be remedied by x-ray are reduction of adhesions, recession of small ovarian cysts, disappearance of erosions and degenerations of the cervical glands, relief of pruritus vulvae, relief of dysmenorrhea, shortening of a troublesome menopause, control of hemorrhage of menopause, production of sterility in selected cases, recession of uterine fibroids. In this latter case, errors of diagnosis usually account for failures, and the rule should be followed that tumors which do not yield to two or three series of x-ray should be operated. The following types are better operated; pedunculated growths, submucous tumors, tumor associated with anemia, chills and fever, chronic tumor that grows suddenly, tumor associated with ovarian cysts, tumor associated with gonorrheal infection, large non-vascular tumor, tumor in woman who desires children and who can be relieved by myomectomy.

Of 140 cases of uterine fibroids treated, 75 per cent show no demonstrable tumors; the remaining cases include those that show signs of entire disappearance, those that are free from symptoms and are in excellent health though with small tumors left, those markedly relieved and in good health at present ,but probably eventually surgical. There were only four outright failures in the series.

Some of the objections to x-ray treatment are without foundation, such as the frequently stated one that fibroids may become malignant. The danger of cancer developing in a cervical stump after a supravaginal hysterectomy is far greater than the danger of malignant degeneration of a fibroid. There is definite reason to think that x-ray treatment of fibroids diminishes the likelihood of cancer developing.

X-ray is preferred to radium for several reasons; fractional doses of x-ray give time for readjustment; larger tumor is more successfully reduced; x-ray gives better control of hemorrhage; danger is greater from radium; x-ray does not require loss of time or hospitalization; x-ray covers a wider field of possible pathology.

A reliable basis for comparing the efficiency of therapeutic agents is the chemotherapeutic index, that is, the relation of the maximum tolerated dose to the minimum curative dose.

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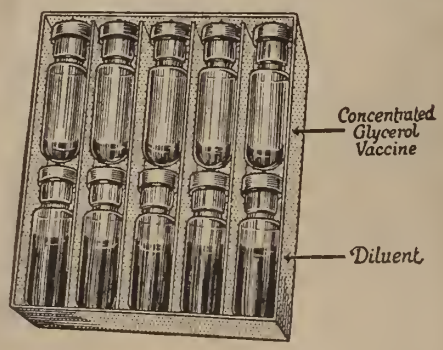
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VOLUME VIII JULY, 1924 No. 7

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For Table of Contents—See Advertising Section Page 1

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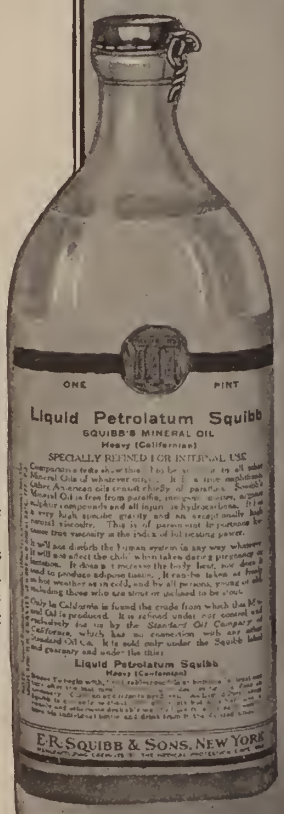
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CONTENTS

ORIGINAL ARTICLES

MEDICAL EDUCATION OF THE PUBLIC 305
(President's Address before the New Mexico Medical Society.)
J. W. Stofer, M. D., Gallup, N. M.

RENAL SYPHILIS (Illustrated) 309
E. B. Rogers, M. D., El Paso, Texas.

ACUTE INFECTIOUS JAUNDICE (Case Reports) 314
Roy E. Thomas, M. D., Los Angeles, California.

CHRONIC INFECTIOUS ENDOCARDITIS (Discussion) 318
Charles S. Kibler, M. D., Tucson, Arizona.

THE USE OF INSULIN IN THE TREATMENT OF DIABETES (Discussion) 324
Bertnard Smith, M. D., Los Angeles, California.

BASAL METABOLISM 327
Philip B. Newcomb, B. S., M. D., Tucson, Arizona.

FRACTURED COLLAR BONES WITHOUT DEFORMITY AND THIGHS WITHOUT SHORTENING (Illustrated) 331
Clark W. Hawley, M. D., Chicago, Illinois.

MAXILLARY SINUSITIS 333
M. C. Comer, M. D., Tucson, Arizona.

EDITORIAL

PROCEEDINGS OF THE FORTY-SECOND ANNUAL SESSION OF THE NEW MEXICO STATE MEDICAL SOCIETY 338
STATE MEDICAL SOCIETY 350

NEWS ITEMS AND NOTES 354

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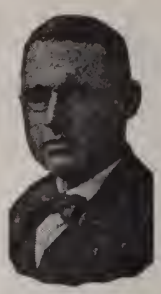
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MEDICAL EDUCATION OF THE PUBLIC*

DR. J. W. STOFER, Gallup, N. M.

The education of the public on medical and health subjects is one that has been discussed among medical men for years, but only recently has anything on a broad scale really been attempted or any definite methods of procedure been adopted.

This new movement is due in part, at least, to two causes; first, the organization of various public bodies for better public welfare; and, second, the growth and multiplicity of many unscientific cults who are imposing their practices upon the public. The medical profession is anxious to cooperate with these welfare organizations who from unselfish motives are attempting to do something for humanity.

The spread of the cults we look upon as an epidemic such as typhoid or smallpox and amenable to the same treatment; that is, public education and enlightenment.

Our code of ethics is clear upon our relations with these sects, and states, "Physicians should warn the public against the devices practiced and false pretensions made by charlatans which cause injury to health and loss of life."

It would be useless to go into the history of various forms of quackery that have been practiced upon humanity in the past, but it is sufficient to say that they have been short lived and have accomplished no good.

Every advance in the warfare against disease has been made by the regular medical profession; no cause or cure for any disease has been discovered except by scientific medicine.

It is important that the public be better informed as to the work the profession has done and is attempting to do for human welfare. In the past the medical profession as a whole has been reticent in taking any active part in making known their qualifications to the public and in the minds of the laity a great deal of secrecy and mystery surrounded the profession. Our ethics justly condemns any physician who makes a practice of individual advertising, still we are coming to feel the need of more actively acquainting the public with the benefits of scientific medicine.

The American Medical Association several years ago went on record as favoring a publicity campaign and have outlined and made recommendations for various methods of publicity. This is a day of organizations, and groups of individuals of all classes are organizing to spread the knowledge and benefits of their various lines of activities. The cults and irregulars are indulging in an advertising campaign that is unprecedented and, while not hindered by ethics and in many cases by honesty, are invading all the fields of advertising possibilities.

There is no desire or intention on the part of the medical profession to compete with these classes in advertising as the term is commonly un-

(*President's Address before the Forty-Second Annual Session of the New Mexico Medical Society, held at Santa Fe, N. M., May 27-29,1924.)

derstood, but there is an intention to enlighten the public upon medical subjects in so far as possible.

The profession has been rudely awakened in the past few years to the need of taking an active part in health legislation. There have been many laws passed in various states that are not in harmony with the welfare of the public health and much legislation has been attempted that fortunately has been defeated, noteworthy of which were the anti-vivisection crusades. Medical men often consider political activities as contrary to their medical training, but owing to the fact that they are better able to judge the effect of legislation upon matters of public health than other classes it is their duty to take an active part in formulating laws governing public health. This is not from a partisan standpoint or for the benefit of the medical profession alone, but primarily for the good of the public.

It is not probable that any legislation will ever put the quacks out of business; they have been with us always and will be probably until the millenium. The best we can hope to do is, by appropriate legislation, public education and the requirements of definite amounts of training, to keep them at a minimum.

We may, by legislation and sanitation, eradicate many diseases as we have in the past practically eradicated typhoid, yellow fever and smallpox.

Medical education of the public will teach the laity that health laws and medical practice laws are of more vital importance to them than to those practicing the healing arts. The public health department is one of the best resources for publicity and education of the public and reaches many homes and individuals that rarely come in contact with a physician. Their periodic examinations of school children often leads them to the homes of defective children and thus defects in adults and many faulty living conditions are discovered. These examinations of school children are of untold benefit to these children and often prevent many unnecessary illnesses and deformities, some of which might prove serious handicaps in their future lives.

Secretary Hoover recently in an address on child welfare said, "While the greater part of America's 35,000,000 children are objects of the utmost solicitude on the part of the parents no amount of solicitude can correct the dangers to which these children are in many instances subjected by failure of community safeguards. We find in many of our communities impure sources of water and impure supplies of milk; in others we find inadequate health inspection and play grounds; we find archaic systems and incompetent administration of public health in many cities and towns, and we still have large numbers of children at work in factories when they should be in school."

The training of school children in hygiene and public health matters is a very important step in public health education, as they are much more susceptible to new ideas than adults and often have more influence over their parents and guardians than any health officer or physician could have. The public health department is primarily preventive medicine and at present their duties are confined to that realm of medicine. There should be complete harmony between them and the medical profession and it is scarcely necessary to suggest that all health officers should by all means be graduates in medicine; in some localities health officers are not graduates in medicine and some even belong to non-medical sects. Their duties cover such a field of medicine that it is becoming in reality a specialty. Many medical schools are now offering special courses in public health service.

The health officer is in fact in an educational position, and as he is paid by the community at large his duties are to the masses and not to the individual. There is almost unlimited work for him along these

lines at present. The only likely source of friction between the health officer and the regular profession is in the establishment of "free clinics".

It is of considerable importance just now how far we shall go with this question of free clinics. The medical profession has always done a great amount of charity work and done it gladly and are willing to continue to do charity work. There are two things to consider in the free clinic idea; aside from consuming much of the health officer's time that should be devoted to education and preventive medicine it is a long step in the tendency to "state medicine" and will allow of the imposition upon these clinics of many who are not deserving.

The Public Health Service in recent years has accomplished a vast amount of good and as time goes on with better cooperation from the public will be able to do even more than they have in the past.

Many diseases that are now almost pestilent in many communities will be entirely eradicated. The full time county health office is a permanent position.

A recent report from the United States Public Health Service states that preventable diseases will cost the people of the United States three billion dollars this year and cause inestimable suffering and approximately 500,000 deaths.

At present the activities of the health department are directed mainly toward maternal and child welfare and here we find an immense field for medical education. To quote Secretary Hoover again, he says, "With all the enlightenment and all the prosperity of our great people we find that in five other nations there is a lower rate of fatality amongst mothers at childbirth and the great national draft indicated that something like 80% of the men examined were deficient in some particular or another."

"It is estimated that 20 to 40% of maternity cases in the United States have no medical attendant; that 70% or more have no advice during pregnancy, with the consequently appalling mortality of both infants and mothers. About 50,000 mothers die annually in confinement."

The public is making rapid advancement in all lines of learning and are anxious to take up anything that is advantageous to the public welfare, as may be noted by the readiness with which various local organizations adopt and sponsor any move for the betterment of public health. Many of these projects originate with these organizations and physicians are invited to assist. We must cooperate with these lay organizations that we as an organization failed to inaugurate, as our knowledge and skill is indispensable for the success of many of these worthy enterprises. It is probably better that lay organizations take the initiative in these movements, as it is quite doubtful if the medical profession could enlist the financial support to make a success of such enterprises. The medical profession has never been able to enlist any considerable support for movements originated and sponsored by itself.

The public press is more lenient and more in sympathy with organized medicine than ever before; this is probably due to two reasons, cleaner and higher standards of modern newspapers and to the great strides in medical education as a result of higher qualifications of medical graduates.

In the past yellow journalism predominated and individual and quack medical advertising was a prolific source of revenue to these papers as well as to the individual advertisers. There has been a great change in regard to these irregular and irresponsible advertisements, as most papers assume some responsibility for the integrity of their advertisers. Many of the better newspapers are no longer selling space to unreliable concerns and at the same time are endeavoring to furnish reliable and educational information as well as the news of the day. They have no

better means of securing medical news than through the public health departments and organized medical societies. It is scarcely necessary to mention that all material presented to the public should be that about which there is no controversy among medical men.

Practically all our large daily papers and many local weekly papers published items on prevention of cancer during the prevention of cancer campaigns and manifested a real spirit of harmony and cooperation.

Many life insurance companies are at present urging their policy holders to undergo an annual physical examination and some more progressive communities are advocating the examination of adults on each birthday. This is especially desirable in adults past forty years of age. It is to be hoped that these examinations will become popular, as it is much more satisfactory to examine a well person than a sick one. They should be undertaken conscientiously and with a sense of responsibility and should be even more elaborate than a life insurance examination, as they will include not only the personal and family history and physical examination, but also advice as to future modes of living, diet, occupation, climate, etc. If we can educate the public to the benefits, in fact the duty, of periodic examinations we will be performing a real service to the public as well as opening up a really new field of medical endeavor.

Aside from the methods of informing the public already mentioned the American Medical Association has their own publications in the way of pamphlets and the recently established medical journal for lay people, "HYGEIA." It is the duty of the profession to support and use these publications upon all possible occasions. If the American Medical Association after due deliberation have decided in favor of educating the public upon health matters, should not we as individual physicians do all we can to cooperate? There is no doubt that the public is demanding more enlightenment upon all matters of health, and if they do not obtain it through the regular profession the yare going to obtain instruction through other sources that may be available.

After all, the best education of the public are the acts and performances of the medical profession, and so long as we continue to succeed in the healing art where others fail and so long as we are honest with ourselves and our patients so long will we enjoy the good will of the thinking classes of the American people.

The medical profession claims the distinction of being the only profession that is constantly endeavoring to lessen the volume of its own business, and we know that better education of the public in sanitation and hygiene means less illness and consequently less work for the physician, yet with the past history of the unselfish aims of our profession we know that modern medicine will not be found wanting in anything we can do for the advancement of human welfare.

RENAL SYPHILIS*

With Case Report

E. B. ROGERS, M. D., El Paso, Texas.

When one attempts to look up the literature on syphilitic disease of the kidney he is immediately impressed with the scarcity of material to be found. The average English or German text-book devotes a few words to the subject, usually mentioning only one or two chronic conditions. Strumpell gives three lines, Stevens' Practice, one-third page, Nothnagel's Encyclopedia a half dozen disconnected paragraphs and Nelson's Loose-Leaf Medicine one page, while Barker's Monographic Medicine, supposed to be a work especially on diagnosis, gives seven lines to diagnosis and about one-third page to prognosis. Cabot's Urology contains a more comprehensive article. Much more extended descriptions are found in the French. Dieulafoy, for instance, devotes 35 pages to renal syphilis.

One very evident reason for this paucity of material lies in the fact that the disease is so highly amenable to treatment. But few cases of renal syphilis come to autopsy with definite etiology, unaccompanied by either previous kidney affection or intercurrent disease and untainted by the possible effects of remedial agents. When one stops to consider that the sequellae of disease of childhood may be evident in the adult or even in the senile kidney, as in the case that will be here reported; and when we further consider that both mercury and arsenic may produce serious insult to the healthy kidney, we can only reach the conclusion that a nephritis proven to be due solely to a luetic infection will be a rare pathological condition. Then when we remember that autopsy may show a considerable nephritis in cases that did not have the expected urinary findings (Cabot), the problem becomes even more difficult of solution.

It is likewise difficult to estimate the frequency with which the syphilitic process affects the kidney. Osler fixes the morbidity at 3.8 per cent in the secondary stage. This is probably a good average estimate. The morbidity in the tertiary or final stages, occurring after some years of infection, is much higher. Necropsy findings in cases said to have died of the syphilitic infection show some form of kidney change in an average of about one-half the cases. To conclude that this 50 per cent morbidity is due to syphilis would be incorrect; these cases represent the effect of the syphilitic disease plus all other etiological factors of nephritis that may have occurred during the life of that individual. To estimate the luetic factor in more than a gross way would be practically impossible.

PATHOLOGY

The pathogenesis of renal syphilis has not been definitely established. During the secondary stage spirochetes are eliminated in the urine, probably without damage to kidney parenchyma. In this stage they undoubtedly invade the walls of the blood vessels and possibly lay the foundation for the later changes of endarteritis, sclerosis, hyaline and amyloid degenerations. Whether these changes result directly from the invasion of the spirochetes or from the action of toxins has not been determined.

The pathology may be outlined as follows:

I. Precocious forms—
   1. Albuminuria.
   2. Acute nephritis.

II. Late involvement—
   1. Chronic interstitial or mixed nephritis.
   2. Amyloid kidney.
   3. Gummata.

(*Read before El Paso County Medical Society January 7, 1924.)

The early forms occur chiefly in the secondary stage or during the first year, and are probably due to the effects of the syphilitic toxins rather than an invasion of the kidney tissues by spirochetes. These acute forms vary from a transient albuminuria to heavy albumin with scattered casts, subacute and finally acute nephritis of the most severe form. This is the so-called large white kidney, but the color is rather a grayish yellow due to the lipoid change. It is essentially a tubular nephritis. The lining epithelium of the convoluted tubules is swollen, granular, degenerated so that it stains poorly or it may be completely lost, while the tubules contain granular or hyaline debris and casts. The interstitial tissue is swollen, edematous, infiltrated with leucocytes, and the arteries may show thickening of the intima. The glomeruli are less affected. This acute syhpilitic kidney is a degenerative process rather than inflammatory. It begins as a cloudy swelling which passes into a fatty, or lipoid, degeneration of the lining epithelium in the severer cases. These lipoids collect in the tubules as casts or are excreted in the urine as droplets about the size of white blood cells, which when viewed by polarized light are double refractive and show a dark cross on each droplet. A distinctive feature is that the lipoids do not occur in such amounts in other forms of nephritis. The mixed forms of chronic interstitial and parenchymatous nephritis and amyloid kidney do not differ in any particular from the same pathological entity due to other causes. Gummata are rare, occur single or multiple, vary greatly in size, have no histological characteristics peculiar to this location, and are recognized solely as tumors of the kidney. More frequently there is a sclero-gummatous infiltration of the whole kidney with interstitial changes, hyaline degeneration of the glomeruli, fatty degeneration or loss of parenchyma, and endarteritis.

SYMPTOMS

Exclusive of the indications of syphilis in other parts of the body, there are among the symptoms or signs that would direct our attention to the kidney, just two that might reasonably lend suspicion to a luetic origin of a nephritis—edema and a large amount of albumin in the urine. Acute disease of the kidney may intervene at any time during the secondary stage of the infection, when the toxic condition is most pronounced. This is frequently a transient albuminuria. Some cases go on to a heavy persistent albuminuria, while a few pass into the severer forms of tubular nephritis with violent onset and rapid development. It is usually accompanied by edema of the tissues, especially of the extremities and abdomen. Frequently there are effusions into the pleural, pericardial and peritoneal cavities. Headache and uremic symptoms are rare in uncomplicated cases, with little passive congestion. The blood pressure is usually not increased. Marked anemia is the rule, especially after the disease has run for some time. Among the fourteen cases cited by Dieulafoy six came to autopsy. Death is usually from exhaustion rather than uremia.

The urinary findings are of importance. The amount is small, sometimes only 300 cc. in 24 hours, with high specific gravity and heavy albumin. Under the microscope are mononuclear leucocytes, a few hyaline and granular casts, droplets of a double refracting lipoid substance and often a few red blood cells. The lipoid bodies may be single, in groups, clumped in epithelial cells or collected into large opaque casts. They may occur in secondary contracted kidney, but never in such amounts as in parenchymatous syphilitic nephritis.

The late renal syphilis is usually a diffuse sclerosis with or without gummatous change or amyloid degeneration. Clinically it is indistinguishable from chronic interstitial

nephritis of any other cause, and terminates by uremia. In a given case it is impossible to say definitely whether the nephritis has resulted from lues or whether the syphilitic infection occurred in an individual who previously had chronic interstitial nephritis. In the latter case the infection would but augment the progress of the renal disease.

Amyloid kidney deserves especial mention, as syphilis is the third cause of this condition, standing as it does next after tuberculosis and chronic suppurations. The urinary findings are similar except that in addition to the lipoids mentioned there are found single refractile fat substances. The diagnosis can be made only by the polarizing microscope (Munk). Amyloid develops slowly, late in the tertiary stage, but the clinical symptoms often come suddenly and the patient may be in serious condition ten days after the first appearance of albumin in the urine.

The Wassermann reaction is usually strongly positive in the acute cases. It may be weak or variable in the chronic conditions as it is in any other late syphilis. Here a positive Wassermann does not necessarily mean that the etiological factor has been found, as we may only be dealing with a nephritis in a syphilitic individual. However, the test is of great value in those cases who do not know that they harbor an infection. It increases the number of demonstrable cases, and gives an indication for treatment. Then, if specific therapy alleviates the renal disease we may assume that syphilis was a factor in its etiology.

DIAGNOSIS

The early transient albuminurias are detected in the routine urinalyses and disappear on treatment. The acute nephritis appears usually coexistent with secondary lesions, or with a history of recent infection. According to Osler and Gibson (System of Syphilis, London, 1908, p. 74), it is distinguished by; first, that the amount of urine in the syphilitic nephritis is not lessened to the same extent as in other forms with the same amount of albumin; second, in proportion to the amount of albumin casts are rare; third, the general type of the disease affects the patient less than other types of the disease. Other authors (Dieulafoy, Hoffman, Thompson) stress particularly the insidious onset, marked edema, large amounts of albumin, and few casts, with only slight general disturbance and moderate lowering of renal function. The study of lipoids in the urine would be interesting and valuable where a polarizing microscope is available. The finding of spirochetes in the urine will be of little importance since they may be excreted without prejudice to the kidney tissue, or they might come from other portions of the genito-urinary tract. The therapeutic test, the effect of arsphenamine, is of the greatest importance, as the acute conditions are highly amenable to treatment, and the result furnishes proof almost equal to that of a problem in geometry—quod erat demonstrandum.

The chronic conditions furnish greater difficulty. We have said before that they are undistinguishable from the same forms of nephritis occurring in non-syphilitic individuals. If treatment produces an alleviation of the symptoms it is presumptive evidence that syphilis has been a factor in the case.

Amyloid kidney might be suspected in an old syphilis where the urine is scanty but high in albumin, where we have anemia, edema, low blood pressure and both single and double refractive lipoids.

Gumma of the kidney has caused many variations. If large it may be palpable and be mistaken for tumor; it may cause pains simulating renal colic; or if it ruptures into the pelvis the resulting pyuria without demonstrable organisms may be mistaken for renal tuberculosis.

PROGNOSIS

The albuminurias clear up on treatment, as do the milder cases of nephritis. The rare, severe cases may go on to a quick fatality. The chronic syphilitic kidney probably presents a more favorable prospect than any other chronic kidney. Careful treatment often ameliorates the condition and gives the patient years of life beyond that which would be expected in cases of other etiology. Amyloid is hopeless. Gumma is usually amenable to treatment, and where nephrectomy has been done under the mistaken diagnosis of new growth the outcome has been good.

TREATMENT

The treatment of these cases is two-fold; first, the treatment of the special kidney condition, and second, that of the syphilitic infection. The kidney receives the same general attention as similar nephritis of any other etiology. Questions of judgment arise when treatment of the syphilitic infection is undertaken. The consensus of opinion of the present day is that the arsphenamines produce better results with less kidney irritation than mercury. The first dose should be small, the more severe the symptoms the smaller the dose. Beginning with 2 or 3 mgms., increase gradually to 7 or 8 mgms. per kilo of body weight. As long as improvement takes place the succeeding doses at weekly intervals may be increased. If during any week the albumin increases and does not come down to, or below, the level of the preceding week, the next dose must be diminished. In cases where we begin treatment of a luetic infection with clear urine, there is frequently seen a cloud of albumin after the first, or sometimes the second, injection of arsphenamine. The condition apparently results from the irritation caused by increased elimination following the arsenical injection in a kidney that is near its threshold for albumin. It may be discovered only by routine urinalyses. Repetition of the same injection is called for here rather than diminished dosage. Albuminuria developing at any time after three injections have been given is of greater import and requires greater caution, with usually a diminished dosage. Mercury should be withheld when albumin is present. If nephritis develops during treatment it means a combination of irritable kidney or old kidney disease, with either inefficient treatment or a malignant infection. In these cases it becomes a question of diagnosis whether the nephritis is due to the disease or to the treatment and cautious experimenting with the dosage may be necessary to determine the course to pursue, as the polarizing microscope is not available to most of us. The next dose should be greatly diminished. If improvement does not take place within a week or ten days, a considerably larger injection may be tried on condition that kidney function remains reasonably good. To determine this the urea percentage test is approximately as good as the phenolsulphonephthalein test, and is sufficient for routine cases.

When a case comes with an established nephritis caution is necessary until the diagnosis is proved, after which the treatment should be pushed vigorously. Iodides are valuable in gummatous conditions.

CASE REPORT

Mrs. S. P., age 23, married one year. At the age of two years she had scarlatina and the parents say that the attending physician at that time stated she had "kidney trouble". At various times during childhood the same statement had been made. However, this seemed not to have been a great handicap because she grew to young womanhood apparently in very good health. At the age of 22 she married an ex-soldier of the world war. Later the significant comment was made that almost from the day of her marriage she had been sick. During the third month a pregnancy occurred which was followed by spontaneous abortion at about 10 or 12 weeks, with curetment by a physician in San Antonio, where she lived at that time. Some months after this operation she is said to have had pneumonia, but absence of high

temperature and expectoration of blood throw some doubt on this diagnosis. Later developments would lead one to think there probably had been an effusion into one of the pleural cavities accompanied by rales in the partially compressed lower lobe. Edema came on, especially in the lower extremities, with dyspnea on exertion, and she was forced to remain in bed. The history of conditions for the next two months prior to her arrival in El Paso is indefinite and uncertain. The heart symptomology, dyspnea, reclining position, palpitation, and a systolic murmur, seemed to have held a prominent position and there was no report of a urinalysis having been made.

I saw the case first in February, 1921, at which time she had been married about one year. She was in bed, propped up into a sitting position with pillows. There was marked dyspnea, which increased to an intolerable degree on attempting to lie down. Some restlessness was present. The whole body represented the picture of an immense anasarca from the swollen face to the waterlogged lower extremities. The skin had a white, waxy, lardaceous appearance and pitted over the whole body. T. 98, P. 120, B. P. 180/130. Weight estimated, 160 lbs. Normal, 130 lbs.

Chest examination showed a few rales in the lower lobes, but an attempt to move her so as to examine posteriorly or determine change in position of fluid caused vomiting and had to be abandoned. Vomiting had persisted during her trip to El Paso. The heart area was increased one inch to the left and dilated nearly the same distance to the right. There was a double murmur over the precordia, more sharply systolic than diastolic, and more marked at the apex. No valve sounds could be heard except at the base. Ascites was suspected, but could not be properly examined. An a. m. urine gave s. g. 1008, heavy albumin that almost boiled solid in the tube, but no casts. The diagnosis at this time was an acute nephritis engrafted upon an old chronic kidney and cardiac decompensation. With diet and general treatment improvement followed for about six weeks, at which time the records shows: P. 100, B. P. 158/115, little dyspnea, no cardiac murmurs, diminished anasarca, and less albumin in the urine. She now developed a sore throat with redness only, and a pain in the right ankle which yielded to aspirin. A sudden change for the worse caused her removal to hospital. In spite of protests of the family that it was not necessary, a Wassermann was now made and resulted 4 plus.

An injection of 0.15 gm. of neoarsphenamine was given. In 4 days the blood pressure had dropped to 140/90 and there was marked improvement in the heart action and kidney condition. On the sixth day a second injection of 0.3 gm. was made, and on the following day the record shows: B. P. 130/85, improvement in the heart sounds and no ascites or enlargement of the liver. However, a pain appeared in the epigastrium. The following day there was a pleural friction rub on the left side extending over much of the lower lobe, the old familiar complication of chronic nephritis. In another 24 hours pericarditis developed and two days later death occurred from exhaustion, the patient being conscious almost to the last.

Postmortem Diagnosis:

1. Anemia.
2. General anasarca.
3. Acute left fibrinous pleuritis with effusion.
4. Acute fibrinous pericarditis with effusion.
5. Cardiac hypertrophy and dilatation.
6. Fatty degeneration of the liver.
7. Secondary contracted kidney.

Pathological Report

The kidneys only will be mentioned as



FIG. I

being of especial interest. First was noted the remarkably small size, the right one weighing only 28 grams, and the left one 37 grams, a total of 65 grams, or a fraction over 2 ounces. Contrast this with the normal weight of about 4 ounces for each kidney in an adult person. Secondary contracted kidneys not infrequently reach one-third the normal weight, but it is rare indeed for them

to get down to one-fourth normal, as in this case. The capsule stripped with some difficulty, leaving a rough, mottled and pitted surface. On section these diminutive kidneys showed very poor markings. The cortical substance was widest at the poles, narrowing to less than two mm. at some intervening points. The pyramids were small, poorly marked, and separated by small clumps of fatty tissue between the calices. It would not seem that there was sufficient secreting tissue to answer the purposes of an adult body weighing 130 pounds. The microscopic picture is that of a chronic interstitial nephritis. Some areas are largely scar tissue, others fatty. Many of the glomeruli are wholly absent and tubules are lost in the interstitial changes. The parenchyma of some of the tubules appears remarkably good, but in others is broken or shows cloudy swelling and degenerative changes. The wonder increases that such kidney tissue could keep a person alive.

CONCLUSIONS

1. Renal syphilis, other than simple Albuminuria, is not a common disease.
2. The condition is to be suspected in cases of insidious origin that have large edemas and heavy albuminuria with few or no casts.
3. Good results may be expected from the treatment of acute cases. The prognosis is less favorable as time elapses.

ACUTE INFECTIOUS JAUNDICE*

(With Case Reports)

ROY E. THOMAS, M. D., Los Angeles, California.

About a year ago I became interested in acute infectious jaundice because of a series of twelve cases which occurred in my practice in the space of a few weeks. At that time inquiry among the physicians of my acquaintance and the observation of numerous jaundiced persons on the streets convinced me that this condition was epidemic in Los Angeles.

The excellent paper by George Blumer, read at the 1923 meeting of the A. M. A., and recently published in the Journal, covers the subject so thoroughly that I apologize for again bringing this disease to your attention. However, I predict that most of us will live to see a widespread epidemic of infectious jaundice here in the Southwest, comparable to the one which recently visited New York State, and any additional knowledge we accumulate in the meantime should be of value in its control. The etiology is at present unknown and I should like to stimulate sufficient interest at least to cause its listing among the reportable diseases. Only in this way can we hope to be of assistance to those who are attempting to demonstrate the infecting organism.

I shall report very briefly the cases which came under observation last year.

CASE NO. 1

Mrs. D. A., age 30 years; housewife. First seen May 29, 1922. Present illness began three days before with malaise, chilly sensations and aching of the limbs. No respiratory symptoms except slight pharyngitis. Present symptoms, nausea and prostration. Temperature 101, pulse 100. Slight redness of the throat. Marked tenderness below right costal margin, liver barely palpable, spleen not felt.

Four days later patient was definitely jaundiced. The stools were clay color and the urine very dark. Three days later temperature and pulse were normal.

Laboratory findings: Hemoglobin 74 per cent, RBC 5,900,000. Leucocytes 3,300. Polys 56 per cent. Wassermann negative. Blood culture negative.

About three weeks later patient developed erythema nodosum. Stiffness and pain in the joints persisted for about one month. Patient has not felt well since and has symptoms very suggestive of gallbladder disease.

(*Read before the Arizona State Medical Association, at its Annual Meeting in Phoenix, Arizona, April 24-26, 1924)

CASE NO. 2

Mr. R. F., 64 years of age; clerk. Past history, three attacks of iritis. Present illness began August 17, 1922, with pain in the left ankle, chill and slight fever. On August 29th, while in the hospital, patient developed sudden distress in the abdomen, vomiting and diarrhea. These symptoms were followed by marked prostration, anorexia, marked irregularity of pulse and tenderness in the epigastrium. The spleen was not felt.

On August 21st, definite jaundice appeared with clay colored stools and bile stained urine. The temperature reached 101 and the patient semed very ill. Leucocyte count 14,419. Polys 87 per cent. Wassermann negative. Symptoms gradually improved, jaundice cleared up rapidly and in two weeks patient left the hospital.

In my opinion the arthritis which was the patient's second attack and for which he entered the hospital, probably had nothing to do with his jaundice.

CASE NO. 3

R. E. T., male, 41 years of age; physician. Onset of illness August 25, 1922. After slight pharyngitis for two days, he awoke early one morning with painless diarrhea, marked malaise, stiffness of the neck muscles and general muscle soreness. Three days later slight jaundice appeared and stools were very light. The urine was bile stained. There was moderate prostration, but all symptoms cleared up within ten days except persistent subcostal tenderness on the right and gastro-intestinal symptoms very suggestive of chronic gallbladder disease.

CASE NO. 4

Mr. R. C., age 42 years; newspaperman. Patient has arrested pulmonary tuberculosis. At 14 years of age he had an attack of jaundice lasting several weeks. On September 7, 1922, he was first seen and complained that for three or four days he had had no appetite and was nauseated. He had no chills, fever or pain. Examination showed slight jaundice, which rapidly became more intense and he was sent to the hospital. He was placed on a fat free diet and daily duodenal lavage. In two days he was feeling better and his appetite returned.

By October 9th all jaundice had disappeared. Inoculation of a guinea pig with the urine of the patient during early convalescence gave negative results. During the three weeks of illness patient lost 11 pounds in weight.

CASE NO. 5

Mrs. A. H., age 31 years; bank clerk. Past history negative except for pelvic operation in 1919 and severe attack of influenza followed by neuritis in 1922. Patient first seen in present illness October 1, 1922. She states that this illness began about six days before with abdominal distress, loss of appetite and nausea. She vomited once. She thinks she had some fever, but no chill. She was slightly constipated until she took a cathartic. About four days later her stools were light in color, the urine very dark and she noticed that her skin was yellow. She was sent to the hospital, where she was given duodenal lavage with magnesium sulphate solution each day. In five days her nausea disappeared, her appetite returned and jaundice began to disappear. Highest temperature in hospital 99.1, pulse 82. Leucocyte count 9,000. She lost 15 pounds in weight. Jaundice did not entirely disappear until about two weeks after patient left the hospital.

Inoculation of guinea pig with urine of the patient during early convalescence was negative.

CASE NO. 6

Mr. F. L. T., age 34 years; bookkeeper. Past history, pulmonary tuberculosis and spontaneous pneumothorax in 1920. Discharged from government hospital as arrested eight months later. Still has some cough and expectoration.

Present illness: On December 24, 1922, patient contracted an acute respiratory infection. The next day he had no appetite and felt very ill. He does not think he had fever and he had no chill. First seen on December 27, at which time there was definite epigastric tenderness and slight icterus. He had headache and had vomited several times. The urine became dark and the stools very light in color. He was sent to the hospital, where he was given duodenal lavage and magnesium sulphate solution each day for one week. After the third day his appetite returned and at the end of the week urine and stools returned to normal color. During his stay in the hospital he was kept on a fat free diet. Jaundice persisted until January 20, 1923. Epigastric tenderness, especially under the right costal arch, was present as late as April 25th, four months after the onset of the illness.

CASE NO. 7

Mrs. T. B., 35 years of age; housewife. Past history: Always frail. One sister died of tuberculosis. Present illness: First seen on September 27, 1922. She stated that four days before, soon after a hearty meal, she was suddenly seized with abdominal pain and an uncontrollable desire to urinate. Three hours later she became nauseated, but had no chill and does not think she had any fever. There was no diarrhea. The stools were very light in color and the urine very dark. At the time of examination there was marked jaundice. Pulse 80. Temperature 99.1. A guinea pig inoculated with sediment of 15 cc. of urine remained normal. She was treated at home on fat free diet and given hexamethylenamin. She lost five pounds in weight. Jaundice did not completely disappear for ten weeks. Epigastric tenderness did not persist.

CASE NO. 8

Mrs. B. K., age 56 years; housewife. Past history: Several attacks of grippe associated with pain in the chest. First seen March 9, 1922, at which time there was evi-

dence of active tuberculosis of upper lobe of right lung. Present illness began on December 25, 1922, with nausea, chilly sensations and aching in the limbs. Four days later stools were very light and urine very dark. Nine days later slight jaundice was noticed which rapidly became very marked. Patient refused to go to the hospital and was given fat free diet and mild catharsis. January 17th, jaundice was intense. There was nausea, but no pain. January 24th, jaundice was still intense and she had lost 9 pounds in weight. There was some soreness in the epigastrium, but no tumor could be felt. At this time patient thought she was not improving and decided to try chiropractic treatments. She reported one month later that she had given up the chiropractic treatments because of the pain which they caused. She was still jaundiced. On May 14th she reported for examination. At this time no evidence of her acute illness could be found.

CASE NO. 9

Mrs. J. H. G., 75 years of age; housewife. Past history: Negative except for arthritis. She has been under observation for some time for arthritis and erythema multiforme. On November 5, 1922, I was called to see her at her home because of abdominal distress, nausea and vomiting. She had temperature 99.2 with chilly sensations. When seen three days later she was definitely jaundiced, her stools were clay colored and the urine very dark. On a fat free diet she made an early and uneventful recovery at home.

CASE NO. 10

Miss H., 27 years of age; bookkeeper. Past history: Influenza 1920. In August, 1922, patient was successfully treated for tenia saginata. Present illness began January 10, 1923. At this time she had a slight respiratory infection with coryza and sore throat. This was accompanied by headache and chilly sensations. A few days later she noticed loss of appetite and on January 20th she vomited. On that day she first noticed definite jaundice. Examination January 24th revealed temperature 99, pulse 104, and some slight tenderness in the epigastrium. Patient says that stools are clay color and urine very dark. She was treated by rest and fat free diet and moderate catharsis and on January 29th the stools were again brown. By February first she had lost 7 pounds. February 7th, slight jaundice was still evident and there was some soreness in the epigastrium. She had returned to work.

CASE N0. 11

Mr. R. H. S., 27 years of age; electrician. Past history negative. About December 7, 1922, patient had an acute respiratory infection with coryza, chilly sensations, fever and malaise. After five days he noticed that he was jaundiced and that his stools were clay colored and urine very dark. Two days later there was pain under the right costal margin lasting about a week. The jaundice persisted for about six weeks. He lost 10 pounds in weight. Convalescence was uneventful without treatment.

CASE NO. 12

Mr. P. T., roommate of Case No. 11; 28 years old; merchant. Past history negative. About two weeks after the beginning of illness of Case No. 11 this patient developed a slight sore throat and cold in the head. Before he recovered from this he developed abdominal pain and nausea. This was followed by slight edema of the eyelids and a few days later jaundice developed. He noticed that his stools had been clay colored for the past week. The urine was very dark. Examination on January 24th showed temperature 99, pulse 80, weight 129 pounds, 11 pounds below normal. Physical examination was negative except for marked jaundice, palpable and tender liver and palpable spleen. Blood count: WBC 6,800, 68 per cent polys. On February 2d weight was 127½ pounds, jaundice more intense. Patient refused to go to the hospital and was lost sight of.

The history of infectious jaundice in this country is so well covered by Blumer that I shall attempt only a brief outline here. The first outbreak recorded was at Norfolk, Va., during the war of 1812. Since that time the disease has spread from the southern states, where most of the earlier outbreaks occurred, to nearly every state in the Union. About 1880 epidemics began to be reported more frequently and in the three year period of 1920-1923 more than 200 outbreaks were reported from New York state alone.

Making due allowance for the altered conditions which now permit us to obtain much more accurate knowledge of the prevalence of any disease, it seems clear that the incidence of infectious jaundice has greatly increased.

As has been said, the infecting organism of acute infectious jaundice as seen in this country is unknown. It certainly is not the spirocheta icterohemorrhagica (leptospira of Noguchi) proved by the Japanese observers Inada and Ido to be the cause of Weil's disease. While it is true that this organism has been found in wild rats in various localities, I have been able to find record of only one case of undoubted infection in a human being. This was an accidental laboratory inoculation.

Infectious jaundice usually affects young persons, though no age is exempt. It has a definite seasonal inci-

dence, occurring chiefly in the fall and winter months. Judging from the character of the outbreaks which have occurred in schools and hospitals where they offered every opportunity for extensive study, the exciting agent is spread by personal contact. In my series I was Case No. 3, and it is possible that I was the source of infection in Cases Nos. 4, 6, 7, 8 and 9, as these cases had all been seen at the office during my short period of incubation. The symptoms, aside from the characteristic jaundice, vary considerably in different outbreaks and in different patients in the same epidemic. The onset is usually abrupt, but may be preceded by mild respiratory symptoms for a day or two, as was the case in half of the series here reported.

Fever is usually present, but is not often a prominent symptom. In only two of my twelve cases did the temperature reach 101. Malaise and muscle pains are often complained of from the onset. In my own case, stiffness of the neck muscles persisted longer than any other symptom except the jaundice.

Gastro-intestinal symptoms are seldom absent and in four of my cases the disease was ushered in by vomiting and severe epigastric pain. The pain was so severe in one instance that the possibility of some acute surgical condition was considered. Two patients had diarrhea of brief duration.

On the third to the fifth day of the disease the patient notices that the urine is darker than usual and the stools a light putty color. At this time jaundice appears and persists in varying degree for one to six weeks or longer. One case here reported (No. 8) was jaundiced for more than eight weeks, but finally recovered.

Other symptoms which occur less frequently than those already mentioned are prostration, conjunctival congestion, epistaxis, herpes and hiccough.

A prominent symptom in all cases of my series and one which is seldom mentioned in the literature is rapid loss of weight. This loss seems out of all proportion to the usual mild course of the disease, amounting to as much as 15 pounds in one case (No. 5). The average loss in eight cases in whom the previous weight was known was 10¼ pounds. This rapid loss of weight I believe can be explained by the fact that these patients seem to have a distaste for fats in any form, and when fats are included in the diet it is probable that the absence of bile in the intestinal tract prevents their assimilation.

The blood picture in infectious jaundice is not characteristic. The white cell count varies from 3,000 to 20,000.

Infectious jaundice has a low mortality. Almost without exception the fatal cases occur in undernourished children or pregnant women, although Cabot reported a death from this cause in a boy of nineteen, previously healthy. Autopsy showed an early atypical cirrhosis. Jones has recently reported three other cases occurring in one year at the Massachusetts General Hospital, all of which showed evidence of a serious liver disturbance in the nature of a diffuse hepatitis. In all of these cases the prognosis was considered grave.

As in most conditions which are rarely fatal, the pathology of this disease is little understood. This much is probably true; that the jaundice is not produced by a plugging of the common duct. Eppinger believes that an increase in the viscosity of the bile occurs which prevents its free flow through the bile capillaries, while Brule contends that the toxin resulting from infection disturbs the function of the hepatic cells as do arsenic and similar poisons.

In the absence of a specific therapeutic agent, treatment must necessarily be purely symptomatic. Rest in bed during the febrile stage, with elimination of milk, cream, butter and other fats from the diet and an occasional dose of aspirin for the discomfort will probably meet the indications in most cases. Three of my

cases were given daily duodenal lavage with magnesium sulphate solution. These patients experienced a return of appetite earlier and were jaundiced for a shorter period than the average of the series. However, no conclusions can be drawn from three cases, and I found no mention in the literature of the use of the duodenal tube in this condition.

SUMMARY

1. I have reported in brief twelve cases of acute infectious jaundice of the type prevalent in the United States.

2. The infectious agent is unknown. There is no evidence to show that it is the spirocheta icterohemorrhagica.

3. "Catarrhal jaundice" is probably a sporadic form of this disease. (Blumer.)

4. There are indications that infectious jaundice is becoming more prevalent in this country, and though not often fatal, it is known that hepatic cirrhosis, chronic cholecystitis and even acute yellow atrophy may follow in some cases. Certainly the disease is worthy of more study than has been given it in the past.

To this end I would urge that it be placed on the list of reportable diseases.

CHRONIC INFECTIO US ENDOCARDITIS*

CHARLES S. KIBLER, M. D., Tucson, Arizona.

My object in presenting this paper is to call attention to a condition which is undoubtedly much more frequent than is realized by most practitioners, a condition which has many symptoms identical with pulmonary tuberculosis and can easily be mistaken for it. I am referring to an infectious disease, which has been variously termed malignant endocarditis, ulcerative endocarditis, septic endocarditis, bacterial endocarditis, subacute and chronic infectious endocarditis. Probably the last term and subacute bacterial endocarditis are the best terms, as they are more accurately descriptive of the condition. This type of infection is to be distinguished from acute infectious endocarditis, which is a much more acute and malignant infection, usually a part of a septicemia, and may be due to a variety of organisms, such as the pneumococcus, gonococcus, staphylococcus, streptococcus, and lasting less than six weeks, terminating fatally. It is also distinguished from chronic rheumatic endocarditis in that the latter has a polyarthritis and a sterile blood culture.

Interest was stimulated in this infection in 1909 by Sir William Osler[1], who published reports of ten cases, running a course from four to thirteen months, all ending in death. He drew a clear clinical picture of this disease. Soon after Billings[2] reported fourteen cases of a chronic type in which positive blood cultures were obtained by repeated efforts.

Chronic infectious endocarditis is characterized by a prolonged fever, an active endocarditis, streptococci in the blood, and embolic phenomena. The latter results in petechiae in the skin, infarcts in the spleen causing enlargement and tenderness, emboli in the kidney causing a glomerular lesion with blood albumin in the urine. Other symptoms of the disease are anemia and tender cutaneous erythematous nodes in the hands and feet especially. Libman[3] has called attention to tenderness over the sternum as a symptom of the disease.

Sir Thomas Horder[4] maintains that a diagnosis of chronic infectious endocarditis rests on a triad of symptoms, namely, active endocarditis of a chronic type, occurrence of emboli, and the recovery of the streptococcus from the blood. On any two of these symptoms the diagnosis may be made with reasonable certainty.

Baehr[5] has shown that in subacute bacterial endocarditis there is a char-

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acteristic lesion in the kidney, involving the glomerulus and due to embolism. This lesion is characteristic only of endocarditis due to streptococcus viridans and was found in endocarditis due to no other organism. Some of the clinical characteristics, especially the petechiae and the glomerular lesions, can be accounted for, according to Baehr[5], by the cultural characteristics of the S. viridans, it having a dry tenaceous growth on agar and a marked tendency to clumping in small particles which cannot be broken up easily. It is probable that particles of small clumps break off from the heart valves, small enough to pass the vasa afferentia in the kidney and become lodged in the capillary loops of the glomeruli.

With refinements in bacteriologic technic, organisms have been recovered from the blood stream more frequently. Rosenow's[6] methods are largely followed by most bacteriologists and seem to give the most uniformly successful results in blood culture.

Bargen[7], following Rosenow's technic, using anaerobic tubes slightly modified, obtained positive blood cultures in 84 per cent of forty-four patients clinically diagnosed subacute or chronic infectious endocarditis or bacterial endocarditis; and Libman[3] recovered organisms in seventy-three out of seventy-five active cases. Even with careful technic, repeated cultures are often necessary to obtain the organisms.

In Rosenow's[6] methods of blood culture, 15 to 30 cc. of blood are withdrawn and the blood is decalcified by adding it to sodium citrate-sodium chloride solution. This blood is added to sterile distilled water and centrifuged, thus eliminating the serum and hemoglobin which are bactericidal, especially the hemoglobin. The sediment is planted in tall tubes of ascites dextrose agar, which gives a gradient of oxygen pressure from anaerobic conditions at the bottom of the tube to aerobic conditions at the top. That this organism has a specificity for the endocardium has been repeatedly demonstrated by Rosenow and others. Recently Bargen[7] produced endocarditis in 80 per cent of the rabbits injected with streptococcus viridans, recovered from cases of chronic or subacute endocarditis.

The organism recovered in the vast majority of cases is a streptococcus or diplococcus, which usually produces green on blood agar and is termed "streptococcus viridans". It should be remembered that streptococcus viridans is a rather loose term covering all streptococci producing green on blood agar and there are many which are comparatively harmless and do not even cause endocarditis. Libman[3] has found that 95 per cent of the cases are due to this organism, which he terms the endocarditis coccus, and 5 per cent are due to B. influenza and the gonococcus. He calls attention to the "bacterial free" stage of this condition and this accounts for the persistently negative blood cultures in many cases.

Chronic infectious endocarditis usually is implanted on a previously damaged heart valve. Osler[1] has called attention to this fact in his publications. However, it very frequently involves an apparently sound heart and not at all unusually the heart seems perfectly normal clinically, even in the presence of other positive symptoms of the disease. In Case No. 2 there was only an increased pulse pressure found, a true diastolic murmur from aortic regurgitation developing later. I recall one fatal case in which no mitral murmur was heard, but in which an active endocarditis was found on the under surface of the posterior valve leaflet at postmortem and another with entirely negative heart findings, yet a moderate sized active lesion on the posterior leaflet above the opposing surfaces. The reason there are no abnormal heart sounds in many cases can be readily seen, when one considers the most frequent location of the bacterial lesions. Libman[3], from a study of the heart in thirty-four cases with positive blood cultures,

states that "when the mitral valve is involved (and it is involved in the larger number of cases) there is a tendency for the vegetations to spread up on the left posterior wall of the auricle more than on the valve itself". In twenty-seven of these cases, or nearly 80 per cent, there was auricular involvement. Unless there is a lesion on the opposing surface of the valve leaflets or marked scarring of the chordae tendinae, a murmur may not be heard at all.

Formerly it was thought that chronic infectious endocarditis was an invariably fatal disease, but more and more recoveries are being reported. Libman[3] has shown that there is an attempt at healing in nearly every case coming to postmortem and that many cases heal and progress into the bacteria free stage, often, however, dying of cardiac decompensation and anemia. Calcareous deposits are frequently found in the heart valves in these cases, and the breaking off of small lime deposits will cause petechiae and fever even in the absence of bacterial embolism. He believes that most cases diagnosed endocarditis with fever are really this condition. This investigation has shown sufficient evidence to prove that infectious endocarditis is a disease in which healing can occur from a bacteriological, pathological and clinical standpoint. He presents eleven cases coming to postmortem, with characteristic glomerular lesions which were unquestionably of this type, and which had overcome and healed the infection, without their having been seen when the infection was active. This raises the question, "How many of these cases are we overlooking, thinking the fever is due to another type of infection?"

In 1915 Oille Graham and Detweiler[8] published a report of twenty-six cases of endocarditis in which streptococcus viridans was recovered from the blood and in which an endocarditis was either present or developed later, while under observation. The striking feature of this report is that most of these cases had vague symptoms suggesting tuberculosis; as weakness, nervousness, fatigue, slight fever, nervous breakdown, neurasthenia; many had fever only occasionally and some had only slight afternoon temperature. No cases had splenic enlargement or petechiae and all of the cases either improved or were living at the time of the report. That these were cases of chronic infectious endocarditis can scarcely be questioned in view of the active endocarditis and the positive blood culture. The mildness of the symptoms in these cases make it quite probable that a great many cases are overlooked, and that this is a much more common condition than supposed. Oille, Graham and Detweiler[8] state that this low grade infection is much more common than rheumatic endocarditis.

Chronic infectious endocarditis simulates tuberculosis rather closely. These cases have afternoon fever, night sweats, gradual loss of weight and anemia, while otherwise able to carry on their occupations. They consult a physician for weakness or loss of weight. An endocarditis may or may not be found. This condition may very closely simulate a peribronchial tuberculosis in which no rales are heard, and whose only symptom is a persistent afternoon fever, for weeks and months. An endocarditis is frequently associated with tuberculosis and even tuberculosis of a mild grade may coexist with bacterial endocarditis, complicating the diagnosis. Several of the cases of Oille, Graham and Detweiler were at first diagnosed incipient pulmonary tuberculosis until other findings revealed the true condition. Petechiae, one of the most important diagnostic clinical points, are frequently absent for long periods of time and come, characteristically, in showers. Fever and a supposed healed endocarditis, or simply fever, may be the only symptom for a long period. Case No. 2 had a chronic pulmonary tuberculosis and was advised to come to Arizona for active tuberculosis when, in reality, the active infection was an

endocarditis. Case No. 1 evidently had a streptococcus pneumonia, as well as subacute endocarditis, and the diagnosis was complicated because of the pulmonary lesion. This case is interesting, as it is one of the recoveries under arsenic therapy.

CASE 1

B. L., age 10. General health always good. Family history negative, except father, who was a blue baby, always had a peculiar heart. He had several attacks of prolonged fever and finally died after a six months' fever from malignant endocarditis, having had many positive blood cultures. Patient had a few diseases of childhood and tonsilitis several times, until December 31, 1921, when tonsils were removed, under ether anesthesia. Recovered in usual manner, was well until about March 31, 1922, when taken ill suddenly with sore throat, fever 104 rectally, a ball like feeling in the center of the chest. Cough which was not productive was present from the onset and continued with the acute symptoms, never, however, being a prominent symptom. Was acutely ill with a continuation of these symptoms and fever 102 to 104 rectally. On about April 14 there were present petechiae in the skin, blood in the urine, and a leucocyte count of 17,000. Blood culture taken at this time was negative. Sodium cacodylate was started, given daily, intravenously. Doctor Capps, of Chicago, saw patient at end of third week, and confirmed the diagnosis of subacute infectious endocarditis. Cough at this time was better, although coughed hard at times, raising only a little clear sputum. Fever about April 21 was running between 102 and 104 rectally daily, and complained of pain in left side of abdomen from an enlarged spleen. Leucocyte count was 14,000 and another blood culture was sterile. Was still coughing hard occasionally. About April 31 still had fever of 102 rectally nearly daily, and systolic murmur and enlarged tender spleen present. About May 16 was better, fever about 100 rectally daily, still coughing some, complains of pain in right palm. About June 1 fever was nearly normal, having pain in left side of abdomen; Von Pirquet test performed and slight reaction present. About June 15 temperature was normal. July 1 was out of bed, walking; was improving until August 11, when temperature was higher again, pulse 124 and not so well, about three dozen petechiae appearing over the chest, back and arms, which cleared up in a few days, but fever continued a little higher. Came to Tucson, about October 1, 1922. At this time there was a roughened first tone and a slight systolic murmur at the apex. X-ray taken about this time revealed the pulmonary shadow considerably reduced in size. Another Von Pirquet test was slightly positive. About January 1, 1923, began to be up and about a little, having a normal temperature and sodium cacodylate discontinued, having been given daily for about nine months. Gradually the cardiac signs disappeared. The last x-ray, May, 1923, revealed the pulmonary lesion scarcely noticeable.

CASE 2

N. F., age 65. Always well and strong man, very active. Family history negative. Personal history, had several attacks of rheumatism, one attack resembling inflammatory rheumatism in 1903. Was well until February, 1919, when had influenza, probably. Coughed for a time, felt sick after this, losing weight and feeling weak, not being able to do much work. No cough or any particular symptoms except weakness. Went on several hunting trips during the summer and returned improved. After a hunting trip during which was subjected to exposure, returned very tired and had a fever every day since, seemed to run down rapidly after this, having rheumatism, some pleurisy, coughing a little, and petechiae on skin. Several blood cultures in October, 1919, were negative. On December 1 patient was dull mentally and mumbled a great deal, had petechiae all over body, spleen enlarged and tender, heart moderately generally enlarged, and blood pressure 128 systolic, 60 diastolic, leucocyte count 12,200, blood culture negative. About February 1, a definite diastolic murmur developed and patient gradually weakened, having rever 100 to 102 daily. Sodium cacodylate 5 gr. intravenously daily was started February 1. Patient gradually weakened and died of cerebral embolism on February 14, 1920.

For perhaps twelve years or more sodium cacodylate has been used with some success in rheumatic infections and in chronic infectious endocarditis. It seemed to benefit cases of this disease and several cases recovered under daily intravenous sodium cacodylate therapy.

Capps[9] recently reported the results of this method of therapy in eight cases, with positive blood cultures, of streptococcus viridans, and all the clinical features of the disease. He administered from 1 to 4 grains intravenously daily over long periods of time, pushing the drug, until a strong garlic odor to the breath was obtained. He insists that a solution be freshly made every few days and no ampoules be used, as this product is of diminished strength. He obtained four recoveries and two cases improving and two deaths among the eight patients, a remarkable result. In 419 cases reported in the literature, only 3 per cent recovered.

Allison[10], in experiments with arsenic preparations on streptococcus, concludes that "these preparations possess a distinct bactericidal power against virulent strains of streptococci in vitro, in dilutions up to 1-3000, and an inhibiting power for at least 24 hours in weaker solutions. They possess bactericidal action against streptococci also in the blood stream of experimental animals. They produce no untoward effects on animals where large doses are frequently repeated. They possess hopeful possibilities for the treatment of streptococcus infections in human subjects, as shown by limited human experience." Capps is inclined to believe that the drug in the ordinary dosage is inhibiting rather than bactericidal. The long continued treatment probably inhibits the bacterial growth enough to allow immunity to be developed by the host.

Recently spectacular results have been obtained by the intravenous use of mercurochrome, 220 soluble in septicemia and other infections, and it is hoped that it may prove curative for this condition in the future.

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DISCUSSION

DR. S. H. WATSON, Tucson:—The excellent paper you have just heard read by Doctor Kibler is certainly timely, and the subject, "Chronic Infective Endocarditis" or "Subacute Bacterial Endocarditis", (use which ever name you prefer), is certainly important to every doctor practicing internal medicine and especially so to those of us, who are trying to do this kind of work in this particular part of the country. Why? Because, as Doctor Kibler indicated to you in his paper, the common mode of onset of this disease, as well as its subsequent course, is so very often like that of pulmonary tuberculosis, that the two diseases may, easily, be confounded. Two out of three of the cases I have seen, have come to me with a diagnosis of pulmonary tuberculosis. I haven't much to add to Doctor Kibler's able discussion of this subject, but I should like to emphasize a few of the points that he brought out.

First: This disease, which most of us older physicians have known by the name of "Malignant Endocarditis", is not the rare disease which we thought it was, and which many of us still consider it to be. True, the disease is not common, but it is certainly not rare and it behooves all of us, when we see a patient with lasting fever and other symptoms, which might be those of tuberculosis, but which we cannot, positively, prove is tuberculosis, to take this disease into consideration.

Second: The diagnosis of this disease is not difficult, if we are only on the lookout for it. Although many cases of chronic infective endocarditis never show a positive blood culture, blood cultures should, of course, always be made and a positive blood culture without an apparent primary focus to account for it, would, in itself, be suggestive of the diagnosis . In cases that show negative blood culture, Doctor Libman states that a complement fixation test with an homologous organism is practically always positive; however, these things are not essentials to diagnosis, nor the important ones to have in mind. They are only laboratory aids, and by having them in one's mind, alone, one would never make the diagnosis, unless they were used on every patient. For the diagnosis of any disease, one must carry the simplest possible picture in one's mind, and for the disease under consideration, the following symptoms would be that picture: Fever, with pain in the left upper abdominal quadrant, and on palpation, a tender and enlarged spleen, together with petechiae in the skin, or mucous membranes, (commonly in crops or showers), and in some cases, exquisitely tender finger or toe ends. These are the essential signs or symptoms and in their presence, a diagnosis can be made with certainty, even though the blood culture is negative, and there is no sign of any former heart valve damage.

Third: Do not hesitate to make a diagnosis of chronic infective endocarditis because there are no signs of valvular heart disease. It is not necessary to have such signs. Frequently, or rather, I should say, not infrequently, there are no clinical signs of valvular heart damage at first; while it is true that autopsy in nearly all cases shows that the disease has been implanted upon a former diseased valve, clinical signs of valve damage are frequently absent until shortly before death, and signs of cardiac decompensation practically always so. In fact un-

less very late in the disease, symptoms of cardiac decompensation preclude the diagnosis. In other words, while this is a disease of the heart, it is not necessary to have heart signs or symptoms for diagnosis. A patient may apparently have a perfectly normal heart with a normal pulse and still have a chronic infective endocarditis.

Fourth: Just a point or two about petechiae. Do not mistake for real petechiae the tiny telangiectases that appear as pin point, or larger, pink or red dots in the skin of many perfectly well people. These latter are practically always raised above the surface of the skin (which elevation can be felt if not seen), while true petechiae, which occur in this disease are not. Tenangiectases are of solid color (pink or red), and while the petechiae of chronic infective endocarditis may also be solid color, the real typical one has a tiny white or cleared center. On the other hand, if you find petechiae with white centers, be sure that the center is not raised above the surface of the skin, because, if it be, it is not a true embolic petechia, but is probably a local staphylococcus infection; really a miliary abscess encircled by hemorrhage.

Finally; given a case of this disease, I want to emphasize what Doctor Kibler has told you about the importance of putting the patient immediately upon daily intravenous injections of a freshly made solution of sodium cacodylate, in good sized doses. Do not be discouraged, if your patient is not better in two or three months of this intensive treatment. Keep it up, if necessary, for six months or even longer. Remember that before the use of sodium cacodylate, as advocated, particularly, by Capps, this disease was almost uniformly fatal, so that any cure, no matter how long it takes is a real accomplishment—one more life saved. Up to date, I have two patients who have recovered from this disease on this treatment, one patient required daily injections for six months, the other for nearly a year, but they are both, now well.

DR. JAS. E. DRANE, Phoenix:—It seems that mercurochrome intravenously is being tried in many different conditions. It seems to me that acute infective endocarditis might be such a condition. Might it not be a good thing to give mercurochrome intravenously in the early stages, or gentian violet, depending somewhat on the results of blood culture?

DR. H. T. BAILEY, Phoenix:—Dr. Watson made the statement that this paper was very interesting to internists. It seems to me that this paper is, or should be, very interesting to every one who practices medicine in any of its branches, whether he is an internist or has some other specialty.

I do not want to discuss chronic endocarditis, but want to report one case of acute endocarditis since Dr. Kibler has mentioned diseases of the throat.

This was a young lady that came under my observation about eighteen years ago. She suffered at first with acute follicular tonsilitis. Following this attack of tonsilitis she developed acute articular rheumatism and following that she developed a typical acute endocarditis. This all took place in less than two weeks. Since that time I have always figured that the poison absorbed from follicular tonsilitis will cause rheumatism and endocarditis. So I think it is well to neutralize these poisons early and prevent endocarditis.

DR. CHAS. S. KIBLER, (closing discussion):—Concerning mercurochrome, I do not think that has ever been given intravenously in chronic infectious endocarditis. It is a new treatment hardly out of the experimental stage, only used a few months so far as I know. I expect there will soon be a report of these cases treated by this method. It certainly seems reasonable that mercurochrome, which seems to sterilize the blood stream would benefit more than any other method of therapy. Arsenic does not seem to sterilize. After all, in arsenic therapy, it seems that the recovery is due to the development of natural immunity with the inhibiting use of arsenic. Oille, Graham and Detweiler brought out that there are cases with mild symptoms. They were looking for streptococci in the blood in a variety of conditions and possibly that is the reason these cases were recognized. The majority of these cases were following acute follicular tonsilitis. They had one series of cases in a family, in which as I remember there were six members of one family who had developed tonsilitis and every one of them developed endocarditis from the tonsilitis. Unquestionably a very close relationship exists between tonsilitis and infectious endocarditis. Oille, Graham and Detweiler's cases were especially interesting to me, from the fact that they showed what mild symptoms can be present with an active lesion of the heart valve.

ATTENTION
FORMER ILLINOIS DOCTORS

Will any and all doctors(former residents of Illinois, or descendants of pioneer physicians of the "Illinois country," communicate at once with the Committee on Medical History, Illinois State Medical Society, No. 6244 North Campbell avenue, Chicago, Illinois?

Under the sponsorship of the Illinois State Medical Society there is in preparation "A History of Medical Practice in the State of Illinois" that must go to the printer at an early date. In order that this volume may be accurate and complete, all possible assistance is asked from every source, as to personal data and experiences, including diaries, photographs and similar documentary mementoes of pioneer Illinois doctors and of progressive phases of medical practice, as well as of achievements in fields other than those of medical science. Prompt return in good condition is promised for anything loaned the committee.

THE USE OF INSULIN IN THE TREATMENT OF DIABETES*

BERTNARD SMITH, M. D., Los Angeles, California.

That Insulin is a most valuable aid in the control of hyperglycemia, glycosuria and ketosis of diabetes was fully demonstrated during the first year after its discovery. Reports of the early clinical studies were made by the Toronto workers, and by men of recognized experience from the more important diabetic clinics in the United States[1]. These publications have covered observations on the more immediate effects of Insulin therapy. We are now at the beginning of the third Insulin year, and this report presents briefly the results obtained with Insulin in four diabetic conditions. It is not the desire to repeat clinical experiences that have been so thoroughly covered before, but to give the results of the general methods used to develop food tolerance with the aid of Insulin.

Twenty-three cases of coma have been treated since July, 1922. Eight of these had been unconscious for from twelve to twenty-four hours when first seen. Of the twenty-three cases, sixteen have been successfully treated. All of the seven failures were brought out of coma, but death resulted from circulatory failure. Ninety per cent of the failures were during the first Insulin year, and it is hoped that some of the more satisfactory results of the second year have been due to the lessons learned by experience. A successful outcome in coma depends largely on a prompt relief from the toxemia and acidosis, with proper circulatory support. During the last year Insulin has been given intravenously in all cases of coma throughout the period of unconsciousness, since it has seemed evident that absorption was both slow and incomplete when subcutaneous medication was used. The intravenous method has also been used to secure early circulatory stimulation, as well as for the administration of glucose and alkali. Estimations of the blood sugar and plasma carbon dioxide are made immediately on all coma patients. As soon as these values are known the patient receives Insulin into the vein, usually thirty to forty units. Immediately after the Insulin has been given, he receives five hundred cc. of a normal sodium chloride solution, containing one per cent of sodium bicarbonate and five per cent glucose. Circulatory stimulation, usually by caffeine and digitalis, is used as indicated, and the usual measures are followed to secure body warmth and to prevent toxic absorption from the alimentary tract. Further doses of Insulin are governed by blood sugar estimations during the time the patient remains unconscious.

Eight patients entering the clinic with extensive carbuncles have been treated with Insulin. Only such minor surgical attention has been given as would secure the evacuation of formed pus. This has been no more than the surgery required for the care of a small abscess. In none of these eight patients was there an extreme ketosis, but the blood sugar values were found to be very high when compared with the moderate glycosuria present. Diabetic patients who have a complicating acute infection must be kept under close observation. An increased toxemia may result in a sudden and critical acidosis, or the Insulin requirement may decrease rapidly as the infection is controlled. Efforts were directed in these eight patients toward a rapid control of the hyperglycemia, and such control has appeared to secure a very rapid destruction of the invading infection.

Gangrene has been a complication in eighteen patients who received Insulin. One of these had gangrene of the nose, and has been reported[2]. Two patients gave evidence on entrance that the infection associated with the gangrene had extended

(*From the Los Angeles Metabolic Clinic. Read at the Annual Meeting of the Arizona State Medical Association, at Phoenix, Arizona, April 24-26, 1924.)

above the knee, and both died of septicemia. Fifteen patients had gangrene involvement of at least the forward third of the foot. Open drainage was promptly secured in each of these cases, but no further surgical attention has been necessary. A prompt control of the diabetes appears to bring about a rapid change in the blood supply to the gangrenous area, and to stimulate normal tissue replacement and healing. Two patients, treated for gangrene of the foot before Insulin was available required from four to six months for complete recovery and healing, without amputation. Fifteen patients treated with Insulin, and with equally extensive gangrene, showed complete healing in from four to six weeks.

The fourth group of patients is composed of chronic diabetics with low tolerance. These patients are usually of low weight and strength, and cannot remain sugar free on diets of the minimum value that will permit them to continue at work. Diabetic patients with no complication that requires immediate treatment are held on a diet of moderate value for several days of tolerance study. For an adult of low weight, the routine diet in this clinic is one that supplies 85.2 grams of glucose (Woodyatt formula[3]) and has an energy value of 1440 calories. After this period of tolerance study, the question of Insulin requirement is easily decided. One hundred and eight chronic cases of diabetes have been treated with Insulin. It has been the aim with these patients to build up a full normal strength, but to hold the weight slightly below a low normal.

In all patients included in the four groups here reported the diet has been gradually carried up in value until it will support a strength sufficient for the normal activity of the patient. The Insulin dosage can often be reduced while the diet is being increased to this maintenance value, and such a gradual reduction in unit dose is often advisable in order to avoid a too rapid gain in weight. Marked gains in weight in the severe chronic diabetic are not uncommon during Insulin treatment, even with a water balance well maintained. Such gains are largely from deposits of loose fat and should be controlled by diet and exercise. Otherwise the Insulin must continue to be given at a high unit dose, or even increased, in order to keep the patient sugar free. Attempts to estimate the glucose equivalent per unit of Insulin have not been successful, but the highest glucose value per unit can be secured only when the minimum amount of the extract is given that will maintain a patient sugar free.

Evidence was found of unexpected gain in tolerance in severe diabetic patients during the early months of Insulin. This stimulated efforts to use the extract as an aid in developing food tolerance in these severe cases. The results for the four groups are given in the following table. The percentages include only those patients who have discontinued the extract for at least four months. Those patients who have been able to discontinue Insulin during the last four months are not included.

Condition	No. of Patients	Insulin Discontinued
Coma	16	12.5%
Infection (carbuncle)	8	62.5%
Gangrene of foot	15	60.5%
Chronic diabetes, uncomplicated	108	16.7%

The number of patients here reported is not large, nor has there been sufficient time for conclusive tests of permanent gains. But it must be remembered that we are at the end of only the second Insulin year, and these percentage figures should stimulate efforts for better results. It is hoped that at the end of another year we can with greater reason dispute the statement that Insulin must be continued always when once begun.

NOTE:—The Insulin used in all cases up to October, 1922, was extracted and tested in laboratories established for that purpose by this clinic. The unit value of this local extract was the same as the present Lilly product. Since October, 1923, all Insulin used has been Insulin, Lilly (Iletin).

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DISCUSSION

DR. REA SMITH (Los Angeles): Being a surgeon and this being a purely medical discussion, I want to open the discussion. I don't think I have had anything that chagrined me so much surgically as to be taught by Dr. Bertnard Smith about diabetic gangrene. I was called early in the experimentation with insulin to see a case of diabetic gangrene at the hospital; my surgical judgment told me an amputation had to be done. I never saw a deader leg. It was black, smooth, and had a perfectly plain line of demarcation. Dr. Smith says, "All I want you to do for me is to establish drainage in this foot." The skin was lifted off the sole and had broken. I don't remember it all, but I made some cuts through the skin and drained the foot. That leg came back entirely normal and the black gangrenous leg is just as good as the patient's other one, and I have gone on record to say that I never will amputate a finger or a toe or leg on any diabetic if you can get an insulin expert to give insulin. Where your surgical judgment tells you it is absolutely necessary and ought to be amputated, insulin will bring it back. I think that insulin coming in is the most romantic thing that has happened in medicine and surgery in this decade. It has taken a disease that is absolutely curable, though chronic, and it has made it a curable disease in from ten days to two weeks, and Dr. Smith did not have time to say that the insulin seems to bring back the pancreas, which takes up its function, and it is a permanent cure rather than such a cure as you get with pancreatic extract, which has to be taken continuously. Insulin can be discontinued and the patient cured of that disease.

DR. KENNEDY: I just want to speak of insulin and its discovery as being one of the high lights in medicine. Think of the way insulin was discovered, the modesty of the discoverers, the careful way that it was worked out before it was put out to the profession, and the fact that it was given its full thereauputic tests. In those days, those discoverers did not claim that insulin was ever going to eradicate diabetes. They left us with the impression that the patient was always going to have to take it. They did not claim anything like the results that the doctor has represented in his paper. I think it is a great credit to the medical profession to have brought this to the public in the way it has been done.

DR. F. C. JORDAN, Chandler:—I would like to ask Dr. Smith if there is a place in Los Angeles where we can send our diabetics, where they may get this preliminary training in dietetics. We feel that if our patients could get a short course in the caloric values of foods and, at the same time, associate with those who are under similar treatment and see the wonderful results of such a course of treatment, that they would come back with the feeling that it is really worth while to undergo some privations if, in the end, there is a fair prospect of permanent result.

THE PRESIDENT: Dr. Smith is undoubtedly a modest man, and I think I will answer that question. Send him to Dr. Smith. He will take care of him for you.

DR. BERTNARD SMITH (closing):—Diets for patients who take Insulin must be prescribed with greater care and must be followed with greater accuracy than is necessary when Insulin is not used. I have seen patients in deep coma who had been taking Insulin for several months, but the dosage had been too low to control the diabetes. In all of these patients the diets had been prescribed in very general terms, with no attempt made to determine the definite food values. I do not believe the best results can be secured with Insulin by any short-cut method of assigning diets. The diabetic patient remains an individual, whether or not he requires Insulin, and his individual food requirements must be met. The prognosis is certainly much better in those patients who have learned to compute their own food values and who have had a general training in the construction of diets. The intelligent cooperation that results from class-room and private lessons for the diabetic are sufficient return for the time spent in such work.

It has been our custom to give Insulin twice a day in all routine treatment. The extract is given about thirty minutes before breakfast and before the evening meal. Some patients show a great variation in the rate of Insulin absorption and the time at which the Insulin is given must be adjusted accordingly. I have some patients who receive Insulin one hour before the meal. We have felt that there has been an advantage in fractioning the food values for the three meals, and carry this out as follows:

Breakfast: Carbohydrate 2/5. Protein 1/4. Fat 2/5.

Lunch: Carbohydrate 1/5. Protein 2/4. Fat 1/5.

Supper: Carbohydrate 2/5. Protein 1/4. Fat 2/5.

With these values for the three meals, the morning Insulin dose is usually larger than the amount given in the afternoon. About five-eighths of the total unit dose is given in the morning, and the remaining three-eighths is given before the evening meal.

Every diabetic patient should be taught to compute his diet in terms of carbohydrate, protein and fat, and such teaching is of especial importance in all patients where the use of Insulin is indicated. It is only by the most careful attention to diet construction, based on intelligent interpretation of the laboratory data, that the greatest benefit from Insulin can be secured.

BASAL METABOLISM*

PHILIP B. NEWCOMB, B. S., M. D., Tucson Clinical Laboratory, Tucson, Arizona.

It has long been recognized as established fact that food and muscular activity are foremost factors in increasing the exchange of materials in the body and the consequent output of heat. It has not been well realized that in the body at rest and without food the end result of all internal glandular and muscular activities incidental to the maintenance of life is also heat, and that the level of vital activity may be inferred from the amount of heat produced.

The measurement directly of all heat given off from the body necessitates, however, such an elaborate and costly outfit and involves so many technical details as to prohibit its clinical use. It is a well-known fact that the intake of oxygen is essential to internal combustion and likewise that the production of carbon dioxide makes up a very large part of the total oxidative activities of the body. Hence, if one could measure accurately the carbon dioxide output, or more preferably the oxygen consumption, a very close estimate of the total heat production and consequently of the glandular and muscular activities of the individual could be secured.

From as far back as 1850 different forms of apparatus have been devised to measure the respiratory exchange, i. e., the amount of oxygen absorbed by the patient's lungs and the carbon dioxide expelled at the same time or during a given time. These experiments, beginning with the respiration chamber, or direct calorimeter, finally evolved what is known as the indirect calorimeter, of which there are two types, known respectively as the closed and open circuit types. The open circuit variety, or gasometer, is designed so that the gases exhaled are collected and the oxygen and carbon dioxide determined separately by a somewhat complicated process of gas analysis.

It soon became evident, from experience with the older methods whereby both oxygen and carbon dioxide were determined, that the oxygen consumption alone is of prime significance in the vast majority of pathologic conditions. Based upon the additional important observation that when a human being breathes pure oxygen the amount of this gas taken up by the blood is the same as when ordinary air is inspired a relatively simple form of apparatus and technic has eventually come into being for the measurement, with extreme accuracy and great rapidity, of the oxygen consumption alone of man. This is known as the closed circuit type of calorimeter, first devised by Benedict[1] of the Carnegie Nutrition Laboratory and later improved or modified by Jones, McKesson and others.

It is the McKesson apparatus which is in use in my work, a machine which presents a high degree of mechanical efficiency and is very sensitive and delicate. With this instrument the patient, by means of a face mask and double breathing tubes, breathes and rebreathes mixed air and oxygen from a closed circuit or system from which the carbon dioxide is absorbed by passage through soda lime, and the amount of consumed oxygen is determined in a very precise manner by reading the volume directly upon a scale. A motor blower is included in the circuit which relieves the subject of all effort in breathing which would otherwise be necessary to maintain the gaseous circulation, which additional labor would lead to error in reading. The float which contains the oxygen is mounted upon a ball-bearing hinge and is counter-balanced by a weight which is so designed as to compensate the float as it dips farther into

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the water in the tank while the oxygen is being gradually consumed. This apparatus has the additional advantage of being provided with a suitable mask to fit the face, covering the mouth and nose, instead of the customary mouth piece and nasal clip furnished with most closed circuit machines. The writer, while working with a Benedict apparatus several years ago, devised a face appliance[2] from a standard type nitrous oxide mask which appeared then and subsequently to obviate many of the discomforts and difficulties occasioned with the usual mouth piece and nose clip. And in the light of further experience it is my opinion that the use of a properly fitting mask in preference to other breathing appliances can hardly be recommended too strongly in metabolism estimations.

Lusk[3] has defined the basal metabolic rate as "the minimum of energy compatible with cell life", but it can be more practically stated for the purposes of measurement as[4] the minimal heat production of an organism, twelve hours or more after eating, with the body in a state of complete muscular relaxation and mental repose.

The basal metabolic rate varies with normal individuals in divers ways. Thus, there is a variation for sex and also for age, males and young persons showing the higher rates. Variations are found in relation to height and weight, thin people producing more heat per kilogram of body weight than the obese. In order for the heat determination to be of value it was of course necessary to have some basis for comparison which would be constant in the majority of individuals. From a vast amount of experimental data certain normals have become established both for age and sex and additionally for height, weight and nutrition, the latter by means of the Dubois surface area formula[5]. This formula has been charted for the various heights in centimeters or inches and the weights in kilograms or pounds so that the determination of the entire body surface in square meters can be rapidly made. In general it was found that between the ages of twenty and fifty years the average heat production per square meter per hour was 39.7 calories for men and 36.9 calories for women[6], though Aub and Dubois[7] have compiled a table of greater accuracy for both sexes from the ages of fourteen to eighty years inclusive. Another factor to be considered in the calculations is the constant 4.825, which represents the caloric value of a liter of oxygen burned in the human body under basal conditions. The barometric pressure of the atmosphere, as well as the temperature and humidity of the inspired gas, are other variables which are appropriately cared for in the estimations by factors worked out in tables as a result of years of investigation. The temperature of the body must also be included, a correction being necessary for each degree above or below normal.

The literature of this subject during the past decade is increasingly voluminous, and while the practical application of calorimetry has been chiefly in the group of thyroid diseases, certain helpful information has been gathered in many other conditions. In fact, Boothby of the Mayo clinic[8 25] has even advocated the classification of diseases according to whether they showed an increased, normal or decreased metabolic rate, much as pathologic processes are gauged by the clinical thermometer, this classification resting upon the fundamental basis of alteration of heat production.

A brief mention of certain conditions in which the basal metabolic rate is found to vary from the established normal may not be amiss, though there is no intention to enter into any extensive review of the subject or to present reports of illustrative cases.

A percentage reading above normal has been consistently found in all conditions of hyperthyroidism. When we speak of hyperthyroidism

we mean simply the clinical syndrome which results from an excess of thyroxin above the estimated[9] amount of 12 to 14 mg. in the body, and this is evidenced by a raised basal metabolic rate and symptoms of intoxication such as a peculiar nervousness and tremor, tachycardia, lowered strength, nutrition and weight, with later myocardial degeneration. It may be produced artificially by the administration of thyroxin as well as by disease processes. Definite symptoms of hyperthyroidism are found, with rare exceptions, associated with either diffuse hypertrophic or with adenomatous goitre with consequent increase of the basal metabolic rate to 20, 40, 60 or even 100 per cent, according to the severity of the condition. In simple colloid goitre a relatively normal rate is to be expected, at least up to the time that secondary or compensatory adenomatous hypertrophy has taken place, for, as Plummer[10] states, the majority of adenomatous goitres have their inception in colloid goitre. In exophthalmic goitre it is considered[11] that the symptoms may be due to some change in the thyroxin molecule rather than being entirely dependent upon excess of this product, but the basal metabolic rate is raised proportionately to severity of symptoms as in thyrotoxicosis of other types. The distinction from the latter can be made, however, in the presence of similarly increased metabolic rates, by the exophthalmos, thrill, bruit, intestinal crises and other characteristic symptoms.

The increased basal metabolic rate of exophthalmic goitre is especially useful in distinguishing this disorder from many psychoneurotic conditions, under which heading might come "effort syndrome", so called "cardiac neurosis", "nervous instability", "pseudo-hyperthyroid vegetative neurosis", . "neuro-circulatory asthenia" and so forth. These morbid states may present some of the symptoms of exophthalmic goitre, but will show at the same time a normal basal metabolic rate and are, hence, not dependent upon excess or alteration of the thyroid hormone.

In cases of acromegaly, or hyperfunction of the pituitary gland, a rather constant increase of basal metabolic rate is found, though in somewhat less degree than in hyperfunction of the thyroid.

Fevers of all kinds are well recognized factors in raising the basal metabolic rate and it is necessary to make a reduction of 7.20 per cent in any determination for every degree Fahrenheit excess shown by a patient at the time of testing. Pregnancy, as might be expected, usually shows a rise in the basal metabolism after the first few months and this customarily falls with considerable rapidity to normal following delivery[12]. A premenstrual rise[13] in rate is ordinarily encountered which returns to normal or below when the period is established and even remains subnormal for a few days following. Menorrhagia of the functional type often shows a rise in metabolic reading and in uterine fibroids increases as high as 30 per cent are not uncommonly discovered[14]. In pernicious anemia and leukemia there are encountered high rates of basal metabolism the exact significance of which is, as yet, not well understood. In leukemia the highest values for basal metabolism are found in cases with very high white counts accompanied by many myelocytes or in patients showing increased percentages of myeloblasts, and it is thought by Gunderson[15] that these findings signify great activity of leucopoietic tissue. Basal metabolism is not infrequently increased in pulmonary tuberculosis, entirely out of proportion to an existent fever, and while the nature of this rise is not comprehended with certainty it perhaps adds evidence to the hypothesis that the thyroid and other endocrine glands are involved in the individual or familial ability to resist tuberculosis[16]. Among other conditions in which the readings of basal metabolism have been found above normal are scurvy, in which disease a de-

creasing rate follows the administration of antiscorbutic agents, and in splenic toxicosis[17]. Therapeutic agents which are known to cause a definite rise in basal metabolism estimation are thyroxin, epinephrin or adrenalin, caffein, the iodides and insulin[18]; hence it follows that none of the above products should be given to a patient in close proximity to a calorimetric test.

In the domain of lowered basal metabolism it is not surprising that conditions of thyroid deficiency occupy a position of equal importance with those of excess function for the values above normal, for, it is to be remembered, that the test is preeminently a quantitative measurement of the thyroid gland. Means and Burgess[19], for instance, from an analysis of 2049 metabolic determinations at the Massachusetts General Hospital, conclude that patients with definite clinical symptoms of hypothyroidism invariably show decreased metabolism. Myxedema and cretinism are both due to the inability of the thyroid to supply a sufficient amount of thyroxin for bodily needs. The edema of myxedema becomes recognizable when the basal metabolism is but 15 per cent to 17 per cent below the average normal[9]. Readings from 20 per cent to 40 per cent below normal are common in this disease[20]. The lowest authenticated extreme is minus 56 per cent recorded within the past year at the Boston Psychopathic Hospital[21]. In suspected cretinism the determination of the basal metabolism makes possible an early diagnosis before the usual clinical symptoms appear[22]. In the therapy of both myxedema and cretinism the basal metabolic rate furnishes an accurate representation of the effects of treatment, makes possible the determination of the exact amount of thyroid substance necessary to the organism and prevents the evil effects of over-dosage. Hypopituitarism displays a subnormal metabolic rate, though the evidence of this disfunction is less in degree than when the thyroid is concerned. Basal metabolic determinations are of considerable value in the matter of obesity, which condition, when due to inactivity of the thyroid or pituitary gland, will present a definitely lowered rate. On the other hand, simple obesity, due merely to a disproportion between the food intake and bodily activity rather than to any fundamental change in the rate of combustion, will be accompanied by a normal metabolic percentage, a fact which proves the fallacy and harm of the treatment of obesity indiscriminately by thyroid preparations. In mental disease there has been found a tendency towards a lowered basal metabolism[23] and very often the mentally subnormal child shows a metabolic reading below normal, although it is interesting to note that Mongolian idiocy gives a normal metabolism[24]. Although the healthy growing child shows normally an increased metabolic rate, the reverse is true in the premature infant, due to the fact[25] that there is a very small amount of active heat forming tissues in these incompletely developed infants.

In conclusion, it can be stated that the basal metabolic rate, as a determination of the heat production of a person under standard conditions serves as a measurement of the most fundamental processes of life. Variations of the heat production are to be considered rightly a legitimate means of disease classification, and furthermore these factors can be accurately measured for all diagnostic purposes by the method of indirect calorimetry. In interpreting the significance of abnormal metabolic findings in patients they must, however, be correlated with clinical findings and their probable importance weighed in comparison with every other bit of evidence in the given case, precisely as should be done in interpreting any other special procedure or laboratory finding, such as x-ray, blood chemistry, kidney function test, sphygmomanometer reading, or the like. Criticism of basal metabolic work has been made from

time to time because of occasional erroneous results obtained by some workers, especially in normal individuals. Such mistakes should be ascribed more properly to carelessness in technic and not cause unfavorable prejudice and a lack of appreciation of this test when its details are carefully and completely executed. It is far better to make no basal metabolism determinations than to make them inaccurately or incorrectly, but the errors of greatest magnitude have been proven to be those of faulty preparation and handling of the patient and are therefore within control by requisite care and attention.

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FRACTURED COLLAR BONES WITHOUT DEFORMITY AND THIGHS WITHOUT SHORTENING*

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The object of this paper is to present an easy and simple method by which the surgeon who has not access to the appliances of the later methods can accomplish the above results with certainty and can assure the patient that the collar bone or the thigh will be as good as before, something no surgeon can do with any of the other methods. The surgeon will not see walking about his town a cripple or my lady at the ball with a deformed collar bone. The results are absolutely certain if instructions are followed.

The author had a large experience with these fractures while a surgeon for a large coal company, and used the method in all fractures of those characters, with perfect results.

The ordinary surgeon away from a large medical center cannot always get the appliances he may need and must depend on his own ingenuity. He can always get a few yards of muslin and a fenceboard, and with a saw and elbow grease can form the splint for a fracture.

Back in the eighties at Rush Medical College Dr. Charles T. Parks demonstrated the two methods to his classes; soon after graduation we had occasion to apply them frequently and his predictions proved true, so

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that we used them regularly afterwards with the most gratifying results. It is surprising how little callus will follow the use of the Moore bandage on a fractured collar bone if properly adjusted and cared for afterwards; but one must attend to the small details of the after care himself and not delegate it to someone else, if he wishes to have a perfect union later.

The indications in these fractures are to keep the fragments in constant apposition and without motion; no method can do this so efficiently as the Moore bandage and the old Buck splint.

The Moore bandage is made from two yards of strong muslin, folded on the bias from two opposite diagonal corners and the surplus cut away as shown in the cut (Fig. 1).



FIG. I.

The bandage is now taken in the palm of the surgeon's hand nearest the patient's body as he stands behind the patient, the point toward the finger tips, leaving the outer section a little longer than the inner, as it must be carried farther. Now place the patient's elbow in the bandage in the palm of your hand, leaving about two inches behind the elbow to be pinned later so as to form a pocket to hold the bandage from slipping. Carry the outer end over the patient's forearm, placing cotton batting in the elbow joint; now carry the end between the arm and the body up across the back and over the opposite shoulder around under the arm, where place some cotton, then onto the back, giving the end to an assistant. Now take the shorter



FIG. II.

end and bring it up between the arm and the body and over the shoulder, being sure that it covers the same well, then over the back to meet the other end held by the assistant; tie very tightly, seeing that the elbow is carried well back and upwards. The fragments will now be in perfect apposition and the indications fulfilled. Now comes the important end of the care. The surgeon, if he wishes a

perfect result, must go each day, or the patient can come to him, to have the slack taken up. He must tie the end very tightly at each inspection. At first the patient will complain, but will soon become accustomed to the annoyance when assured that to get the best results it must be so. Positively do not delegate this to anyone else, then regrets will not follow. The tightening must be kept up for at least two weeks.

In treating the fractured thigh the Buck splint described in the very old surgical books is used. A board splint is formed as shown in the cut (Fig. 2) long enough to extend from the armpit to about 8 inches below the foot. It is made slightly broader at the upper end, where two holes are bored; the lower end is tongued, as shown in cut, or a piece of wood may be fastened at the end and holes bored. Now pad the inner side with cotton batting for about three-fourths of the lower section so as to reach below the ankle joint. Make a perineal bandage by filling a tube made of muslin, the tube to be at the middle of the bandage which should be long enough to reach through the holes in the upper end of splint; the filled portion should be covered with rubber cloth if possible, so the nurse may keep it clean. Having placed adhesive strap with a loop from above the knee to below the foot, and placing a piece of wood across this loop to keep it separated, pass a muslin strip over the stick and around the tongue and tie. Now pass the ends of the perineal bandage through the upper holes and tie snugly. Now return to the lower end and stretch the leg as tightly as possible. On the next visit you will find that the muscles have relaxed and there is much slack from this cause and the stretching of the bandage; tighten again very tightly and keep tight each day as for the collar bone. One great advantage of this method is that the patient is not confined to one position in the bed, for if kept very tight he may move about without fear, but carefully, and can be much more comfortable than by the pulley method. Since I demonstrated the method I saw a child at the Postgraduate Hospital treated by the ceiling pulley way. It is probably effective, but so uncomfortable. With the Buck splint, the comfort would have been better. Be faithful, and in the future you will not have limpers always reminding you of your poor surgery.

As my patients were miners, a deformed collar bone would not have been a very serious matter, but my pride was up and I won out. In a handsome woman, however, it would be a different matter. I should not care to meet her in the ballroom if she followed the style of low neck dress, and a cripple would have been an abomination on the street as a reminder of my work.

I remember a case of three fractures of the leg with the most charming result, but it took much pains on my part to make the patient wear the splint.

MAXILLARY SINUSITIS

M. C. COMER, M. D., Tucson, Arizona.

The primeval urge to discovery that lies inherent in all humanity will possibly lead you to accompany me on a journey through a very interesting cavern and to a short study of a part thereof.

Apart from the fact that it may constitute the chief element in a beautiful ensemble of perfect featural architecture, the nose may interest us from the standpoint of health and pathology.

If this organ were just a breathing tube, if it could be considered as a single entity, then we would have very little use for the rhinologist.

Its function of straining, warming and moistening the inspired air and the serving as a location for the end organs of the sense of smell, would

seem to be a sufficiently large job; but no, it must serve as a sewer for numerous cavities which drain into its lumen.

With the exception of the naso-lacrymal duct, these cavities or sinuses in a normal state do not embarrass the nose with excess secretion and are content to serve their own function, that of acting as a sounding board for the voice and aid in lightening the skull.

But we started on a trip, so we decide that for our own comfort we will select a fairly normal nose, one only moderately infected. We will much prefer a nose whose septum is straight and whose turbinates are normal or nearly so, for we realize the dangers of such a trip where the drainage is bad.

Having threaded our way through the waving vibrissae that guard the vestibule, we timidly proceed until we come to an obstruction blocking our path. Due to the excess of heat and moisture emanating from this body, it is recognized as the inferior turbinate.

Exploring farther, a possible, tho narrow path opens up to us, leading through the inferior meatus. When about one-third of the way through this path we are suddenly drenched by a saline shower coming from a point above, on the external wall. The naso-lacrymal duct is evidently patulous, and our curiosity slightly dampened, we wish for nothing farther than to escape from this overheated moisture-laden path. This we are able to do by approaching the septum and by a stiff upward climb gain the airy spaces of the middle meatus. Going on upward and backward, we approach the processus uncinatus, from the heights of which we look down into the moist depths of the infundibulum. Let us descend and gaze into the ostium maxillaris and wonder at its direction and seemingly poor situation.

The springs that arise from out the caverns above flow over this opening and it would seem must fill the great chamber below. But in times of stress (acute cold) if we are here at early morn we may see a great quantity of contamination vomited forth from this suddenly patulous opening.

Wandering about we have now come to a dark opening and we are tempted to investigate, so in we go. One room after another we enter, until lost in the steaming depths of the ethmoid labrynth. More by luck than sense of direction we finally emerge at the place we entered. With a sigh of relief we greet the gale that circles about us. Refreshed we arise and wander on, coming at last to a large oval eminence, the bulla ethmoidalis, which invites our curiosity, and we ascend from its oval side to cast our wondering eyes upon the hiatus semilunaris. Down this recess flows a milky river which is an index of the amount of infection in the frontal sinus above and to the patulency of its ostium. This ends our trip, and here we are returned and ready to take up a short study of a very important part of this structure.

The maxillary sinus or antrum of Highmore, pyramidal in form, has three sides and a base. Its boundaries are the orbital plate of the superior maxillary, above; the canine fossa, anteriorily; the pterygomaxillary fossa, posteriorly, and the lateral wall of the nose forming the base. The capacity of this sinus is from ten to eighteen c.c. and its shape and position depend particularly upon the peculiar construction of the individual. The most important wall, from the view of the rhinologist, is the nasal, and for two reasons: first, because it contains the sole opening into the sinus and is the first to show pathological changes when the sinus is affected; second, it is the thinnest and presents the easiest mode of attacking the cavity, either for diagnostic or therapeutic purposes. The ostium lies high in the anterior superior portion of the sinus. The mucous lining consists of three coats or layers of ciliated epithelium, tunica propria and periosteum, and is especially loose around the ostium and prone to edematous swelling on slight irritation. The glandular supply is very meager, being confined for the most part to the region of the ostium. The mucosa receives its blood supply from a

branch of the nasal. This sinus is more often diseased than its fellow sinuses because of the added etiological factor in the intimate relation of its floor to the roots of the teeth.

The accessory sinuses are usually affected through their ostia and occassionally through the circulatory system. The maxillary sinus not only presents this to a marked degree, on account of the extremely unfavorable situation of its ostium, but in addition, certain affections of the alveoli are prone to affect this cavity in turn. The teeth, from the wisdom to the canine, bear more or less relation to the floor, the second premolar and the first molar being closest in proximity.

We have the following etiological factors to consider when dealing with maxillary sinus infections:

1. Idiopathic infections (arising in the sinus itself) which is a very rare happening.
2. Direct extension of infection from the nasal mucosa (a coryza or rhinitis), the most common method.
3. Through the circulatory system (in infectious diseases).
4. From the alveoli through continuity (blood stream) or contiguity (bone).
5. Through contamination from overlying sinuses.

In regard to alveolar infection, much greater importance has been given to this factor than it really deserves. In former years this source seemed to supply from 90 to 100 per cent of all reported cases, but statistics now prove that not more than 25 per cent can be traced to this cause.

For the purpose of this paper we will consider only the direct method of infection, this being the most frequent cause. Whenever a general inflammation of the Schneiderian membrane occurs the mucosa of the sinuses is affected. In all cases of coryza there is always more or less inflammation of the maxillary sinus. In the first stages of the acute form a feeling of distension and pressure is always present. This is due more to swelling and hyperemia of the maxillary mucosa than to internal pressure of pent-up secretion. The naris of the corresponding side is occluded and intensely congested. Pain may be present or absent, depending largely upon the degree of inflammation present. It may assume the character of a distension or what is more often the case, that of a neuralgia. Curiously enough, the neuralgia is not confined over the superior maxillary region, but its seat of predilection is over the orbit of the affected side. Supraorbital pain may be the only symptom and of such persistence as to simulate frontal sinus disease. Pain in the teeth of the upper jaw on the diseased side is occasionally present or the pain may radiate to the ear. Headache, whatever its character, is usually intensified by stooping, coughing, etc. Secretion is not formed at the inception of the disease, but makes its appearance after the first day or two. Its place of appearance is usually in the middle nasal passage, beneath the middle turbinate and appearing on the anterior third of inferior turbinate and often on the septum opposite.

The appearance of the secretion is not always constant, as at certain times during the day the nose may be entirely free from any trace of pus. This is explained by the fact that for some reason not well understood the ostium and drainage passages suddenly become patulous, allowing the full escape of the sinus contents into the nose.

When empyema of the auxillary sinus is suspected, there is one sure method which gives definite information; an exploratory needle puncture.

Having found pus, we next must determine whether the sinus itself secreted the product or whether it acted in the capacity of a reservoir for material which had been secreted by one or more of the overlying sinuses, frontals or ethmoids.

As adjuncts to diagnosis we have transillumination and the x-ray. In both the shadow we obtain is caused by the diseased and greatly thickened mucosa and not by the pus which may fill the sinus. We should never attempt to make a positive diagnosis from the findings of either for it is a

matter of common knowledge that equalized transillumination of the maxillary region is the exception rather than the rule.

Treatment for the acute cases is that of any acute inflammatory condition, rest in bed, hot applications, thorough elimination, salycilates and the maintaining of sufficient drainage.

For chronic cases, daily irrigations followed by 50 per cent alcohol or 2 per cent mercurochrome, etc., or negative pressure.

Chronic and unyielding antrums frequently require more radical treatment and if thoroughly and carefully operated through the canine fossa, the diseased membrane, polyps and necrotic bone thoroughly removed and ample drainage to nose obtained, we can promise a cure in the majority of cases.

In conclusion, I wish to cite a few typical cases from my records which will serve to illustrate diagnostic and treatment methods and the different degrees of infection and severity of symptoms.

Case No. 1; acute; direct from nose.

Mr. J. A. F., age 28, white, railway brakeman. Had the usual childhood diseases. Complains of pain and swelling over left maxillary antrum following a severe cold in head about a week ago. General condition good, temperature 99.2, pulse 85.

Examination reveals face over left maxillary antrum swollen and painful to pressure. Upper teeth on left side sore. Neuralgic pain over supraorbital region and referred to left ear. Sense of fullness in left side of face. Copious yellow purulent discharge from left naris, coming from infundibular region. Left turbinates turgescent. Mucous membrane boggy and bathed in mucopus.

Under local anaesthesia, left antrum was punctured under inferior turbinate with large trocar and irrigated. Large amount of pus evacuated. This case yielded to four irrigations followed by a few negative pressure treatments.

Case 2; seen April 26, 1924; acute, extension from alevolus.

Miss E. H., age 18, white, student. Had whooping cough and measles in childhood. Influenza, 1919, and pneumonia, 1913. Says that in December, 1920, a slight swelling appeared in canine fossa on left side. This tumor continued to grow with very little discomfort. Was very hard and finally attained size of small marble. On or about December 21, 1920, left upper lateral tooth began to give trouble, pain radiating to eye and frontal region. Patient referred to dentist who diagnosed the case as alveolar abscess and extracted left upper lateral tooth which he found to be devitalized and canal unfilled.

Physical Findings: Patient looks dull and frowns as though in pain. Attention not good. Her mother has to a degree same dull look and lack of attention. Patient complains of pain over left maxillary antrum. Left side of face, eyelids and upper lip are swollen. Inspection of mouth reveals left upper lateral tooth recently extracted and large sinus communicating with antrum. Complains of headache.

Under local anesthesia sequestrum was removed. Necrosed alveolar process and antrum floor curetted. Antrum packed with iodoform gauze. Twelve days later an opening was made under left inferior turbinate. Edges of wound in mouth freshened and brought together with silk sutures. Upper left cuspid tooth extracted. A section of gum partially excised and rotated into gum wound to replace part involved in slough. Sutured in place. Antrum not packed. This case went on to an uneventful recovery with out irrigations.

Case 3; seen Feb. 17, 1921; acute; complicated.

Miss C. C., age 16, white, student. Comes for relief of paralysis involving left side of face completely and right side partially. Patient contracted, two or three days ago, a slight cold which was followed overnight by paralysis of left side of face rapidly involving right side. Sense of smell and taste abolished. Unable to close eyes. Unable to masticate on left side. Pain severe over left maxillary region and over orbit and referred to ear. She had the usual childhood diseases. Influenza two years ago. Good health since.

Physical Findings: Facial paralysis complete on left side. Partial on right side. Unable to close eyes. Eyelids and face over left maxillary region swollen. Pressure over left maxillary and ethmoids very painful. Thick purulent discharge from left naris. Patient appears sick but well nourished and well developed. Left naris anesthetic. Wasserman — negative. Urine — normal. X-ray shows dark shadow on left, right side clear.

Under local anesthesia left antrum was punctured under inferior turbinate with large trocar and irrigated with normal saline 16 ounces. Anterior third and middle turbinate removed with snare and anterior ethmoid cells opened with curette. Antrum opening in naris enlarged with cutting forceps. Irrigation of antrum produced an ounce of foul-smelling pus. Ethmoid cells contained a little pus. This patient was under treatment February 18th to August 21st, when she was discharged very greatly improved. Two months later patient presents herself and shows but slight paralysis and no discharge.

Case No. 4; chronic; September 18, 1923.

Mr. G., age 48, white, merchant. Ten

years ago a Ford car in which patient was riding overturned and crushed right antrum, fracturing alvelor process from superior maxillary. Dental prothesis was necessary to splint the fracture. Antrum was drained through mouth and later through cheek outside. Since then antrum has drained pus with bad odor into nose and mouth through small fistula. Patient complains of the odor and taste, constant headache and lack of energy. He had the usual diseases of childhood. Is a well nourished individual, skin sallow, looks tired, no temperature, pulse normal.

Examination of nose shows right naris bathed in creamy pus which is flowing from under middle turbinate. Left naris normal. Small fistula discharging into the mouth. All upper teeth on right side thought to be dead. X-ray and transillumination show dark shadow on right.

Under ether anesthesia, antrum was opened through canine fossa and thoroughly curetted. Large window made under lower turbinate to lower meatus of nose. Four teeth extracted. Antrum packed with zeroform gauze. Wound in mouth not sutured. All the right upper teeth found to be dead. Alveolar process necrotic. Antral musosa thickened, much granulation tissue. Antrum was filled with foul smelling pus. This antrum was packed daily through mouth for four days and then irrigated with normal saline through meatus two or there times a week for about three weeks when only a few mucous shreds being obtained treatment ceased. Patient reported three months later that he was perfectly well.

NO TIME TO SPARE

It will soon be too late to protect the annual sufferers from fall hay fever by giving them a full prophylactic course of pollen extract; but it is not yet too late. The full course requires six to eight weeks, one injection being given every three or four days. By beginning early, severe reactions can be avoided, the first few doses being very small; and as every injection raises the patient's resistance, the gradually increasing doses that follow are usually as well borne as the first.

While most cases of fall hay fever are due to ragweed pollen, it is advised that a diagnostic test be made before the extract is given hypodermically, since this takes only a few minutes of the doctor's time. The test is a cutaneous one.

Parke, Davis & Co. offer to supply physicians with a booklet on pollen extracts. See their advertisement in this issue.

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A NOTABLE ACHIEVEMENT

This unsolicited tribute will probably surprise no one more than the man about whom it is written. The editor does not know Dr. C. M. Yater, his associate editor in New Mexico, by sight, but wishes to state that the record made by Dr. Yater, as secretary of the New Mexico Medical Society and as associate editor of the journal, challenges comparison with the record of any similar officer in the country.

A year ago, the New Mexico Society was a disorganized body, ragged around the edges and thinned out in the middle, with one-third of its societies disbanded or defunct. Today it is a compact, rejuvenated and smoothly operating machine, with all its societies alive and working, and with a thirty-five percent increase in membership within one year. Promptly upon adjournment of their annual meeting, this journal was furnished with the following complete report of their proceedings, which is published in full, in order that we of the southwest may know what was done in New Mexico during the past year, and their plans for the future. This report will bear careful reading. Note the appropriation of $500 for the expenses of the Legislative Committee. Keep your eye on New Mexico!

DR. W. A. PARVIS

The death of Dr. W. A. Parvis, of Socorro, N. M., is reported. This occurred in Albuquerque, on May 27th, 1924. Dr. Parvis was born in 1882, graduated from the University of Maryland Medical School in 1905, and was licensed in New Mexico in 1908, having been located for several years at Socorro. He was a member of the New Mexico Medical Society, and a Fellow of the American Medical Association.

DR. ARNO KLEIN,

Dr. Arno Klein, of Albuquerque, N. M., died in that city on May 9th, 1924. Dr. Klein was associated with Dr. Leroy Peters in the practice of tuberculosis at St. Joseph Sanatorium, having come to the state for his own health. He was a member of the Bernalillo County and the New Mexico State societies. He was born in 1886, graduated from the Medico-Chirurgical College of Philadelphia in 1911, and came to Albuquerque in 1916.

PROCEEDINGS OF THE FORTY-SECOND ANNUAL SESSION OF THE NEW MEXICO STATE MEDICAL SOCIETY

HELD AT SANTA FE NEW MEXICO, MAY 27-29, 1924

The Forty-second Annual Session of the New Mexico State Medical Society convened May 27, 1924, at Santa Fe N. M., at the Elks' Lodge.

The Council met at 9:30 a. m., and considered and made recommendations on applications for membership, adjourning at 10 a. m., until 9 a. m., May 28th.

The morning session was called to order at 10 a. m., by Dr. G. S. Mc Landress, (Albuquerque), President, and after invocation by Rev. W. S. Trowbridge, an address of welcome was delivered by Mr. Francis Wilson, acting for Mayor Nathan Jaffa, who was unavoidably detained.

The minutes of the Forty-first Annual Session of the Society were read in abstract form and approved.

President McLandress appointed Dr. H. A. Miller, (Clovis), to escort President-elect Dr. J. W. Stofer, (Gallup), to the chair, who, upon being introduced, said:

"Mr. President and Members of the New Mexico State Medical Society: I very much appreciate the honor of being elected President of this Society. It has been the rule and is one of the by-laws, I believe, that any member who is elected to any office in this Society shall be elected without any solicitation whatever, and I believe that rule is thoroughly lived up to—in fact I know it was in my case because I was probably the most surprised of any of the members, when notified that I had been elected to the presidency."

The President's Address was then delivered by Dr. Stofer, his subject being "Medical Education of the Public."

(Published elsewhere in this issue.)

After the opening exercises, there was a meeting of the House of Delegates, at which the reports of the Secretary and Treasurer were called for and read.

Dr. C. W. Gerber (Las Cruces) made motion that the reports be approved as read, and that Dr. C. M. Yater (Roswell) Secretary and Treasurer, be tendered the thanks of the Society for the excellent work performed by him during the year. The motion was seconded by Dr. H. L. Brehmer (Albuquerque) and unanimously carried.

Dr. Yater announced that it was the duty of the House of Delegates to act as a Board of Censors on the constitution and by-laws of affiliating county societies and that it would be necessary to act upon the constitution and by-laws of the Grant County Medical Society (recently organized) at this session.

Dr. H. A. Miller (Clovis) made motion that the president appoint a committee from the House of Delegates to examine and report upon the constitution and by-laws of the Grant County Medical Society, which was seconded by Dr. Gerber, (Las Cruces), and carried. The President appointed as such Committee, Drs. H. A. Miller (Clovis), H. L. Brehmer, (Albuquerque), and E. W. Fiske, (Santa Fe).

Applications for membership were then considered and passed upon, the following named being elected to membership in the society:

Dr. C. B. Austin, Lordsburg, N. M.
Dr. Charles P. Austin, Lordsburg, N. M.
Dr. W. G. Bassett, Des Moines, N. M.
Dr. J. J. Bergmans, Taos, N. M.
Dr. Frank E. Bird, Cuba, N. M.
Dr. L. R. Boothe, Grants, N. M.
Dr. Hugh T. Brasell, Fort Sumner, N. M.
Dr. W. A. Bristol, Clayton, N. M.
Dr. G. H. Buer, Mountainair, N. M.
Dr. C. H. Douthit, Clayton, N. M.
Dr. J. M. Doughty, Tucumcari, N. M.
Dr. W. L. Drewry, High Rolls, N. M.
Dr. J. I. Dunham, Chama, N. M.
Dr. S. M. Edmondson, Clayton, N. M.
Dr. W. H. Enneis, Clayton, N. M.
Dr. Tobias Espinose, Belen, N. M.
Dr. F. B. Evans, Alamogordo, N. M.
Dr. C. H. Ferguson, Tucumcari, N. M.
Dr. Z. E. Funk, Santa Rosa, N. M.
Dr. J. N. Ghormley, Wagon Mound, N. M.
Dr. R. R. Green, Corona, N. M.
Dr. C. H. Jameson, Estancia, N. M.
Dr. J. C. Kisner, Clayton, N. M.
Dr. W. J. Latta, Wagon Mound, N. M.
Dr. Gertrude U. Light, Santa Fe, N. M.
Dr. G. W. Luckey, Los Lunas, N. M.
Dr. E. D. McKinley, Alamogordo, N. M.

Dr. G. A. Miller, Vaughn, N. M.
Dr. Charles F. Milligan, Clayton, N. M.
Dr. J. D. Moorman, Gladstone, N. M.
Dr. A. M. Parrett, Estancia, N. M.
Dr. G. O. Posey, Nara Vista, N. M.
Dr. J. M. Rumph, Tatum, N. M.
Dr. A. A. Sanford, Duran, N. M.
Dr. W. A. Shields, Marcia, N. M.
Dr. P. M. Shaver, Carrizozo, N. M.
Dr. W. G. Smith, Mora, N. M.
Dr. J. A. Steel, Hurley, N. M.
Dr. J. H. Steele, Des Moines, N. M.
Dr. W. T. Stokes, Central, N. M.
Dr. M. D. Taylor, Aztec, N. M.
Dr. J. M. Wellman, Des Moines, N. M.
Dr. H. E. Whitacre, Tularosa, N. M.
Dr. A. C. White, Hot Springs, N. M.
Dr. John H. Wiggins, Estancia, N. M.

The Committee consisting of Drs. Miller, Brehmer and Fiske, appointed to examine and report on the constitution and by-laws of the Grant County Medical Society, announced that it had done so and found them to be very comprehensive, in harmony with the American Medical Association, and this Society, and recommended that the Grant County Medical Society be approved and granted a charter.

The resolution from last year, (which under the rules, could not come up until this meeting), increasing the dues of members in the Society from $3 to $5 per annum, was discussed and after motion by Dr. Brehmer (Albuquerque), seconded by Dr, Gerber (Las Cruces), and unanimous vote, was declared adopted.

No other business coming before the meeting, motion to adjourn was entertained at 12 o'clock noon, to reconvene Wednesday, May 28, 1924, at 1 p. m.

AFTERNOON SESSION
May 27, 1924

Meeting was called to order at 2 p. m. by the president, Dr. J. W. Stofer (Gallup).

Dr. Stofer announced that the Secretary had informed him there had been a number of deaths of members of the Society during the past year and he would appoint a Committee to draft suitable resolutions, such Committee composed of Dr. G. S. McLandress (Albuquerque), Dr. J. A. Smith (Roswell) and Dr. E. B. Shaw (Las Vegas).

The first number on the program was a paper by Dr. A. R. Hatcher, Wellington, Kansas, entitled "Fractures", which was liberally discussed by Dr. A. C. Scott, Temple, Texas, and Dr. P. J. Kaster, Topeka, Kansas, the discussion being closed by Dr. Hatcher.

The second paper presented was by Dr. A. C. Scott, Temple, Texas, entitled "Hospital Standardization from the Doctor's Standpoint".

This was followed by one read by Dr. Felix Miller, El Paso, Texas, entitled "The Influence of Hospital Standardization upon Community Welfare."

These two papers were discussed jointly by the general assembly as a round table discussion, Dr. Hatcher, Wellington, Kans., opening the discussion, followed by Dr. E. C. Fishbaug, Los Angeles, Cal., Dr. K. D. Lynch, El Paso, Texas, and closed by Drs. Scott and Miller.

The last paper of the afternoon session was by Dr. J. P. Kaster, Topeka, Kansas, on the subject of "What is Traumatic Hernia?" Discussion of this was opened by Dr. F. H. Crail, East Las Vegas, continued by Dr. L. A. Hubbard, Raton, Dr. F. P. Miller, of El Paso, Texas, and closed by Dr. Kaster.

The Society then adjourned until 8 p. m., at which time a public session was held at the State Museum Auditorium. At this session papers were read by Surgeon L. L. Lumsden, United States Public Health Service, Washington, D. C., and Dr. P. W. Covington, Rockefeller Foundation, on "Public Health Problems."

May 28, 1924

A meeting of the Council was called to order at 9 a. m., by the President, Dr. J. W. Stofer, (Gallup), the following members being present: Dr. Stofer (Gallup), Dr. Yater (Roswell), Dr. Beeson (Roswell), Dr. Crail (E. Las Vegas), Dr. Miller (Clovis), Dr. Steed (Deming), and Dr. Ward (Santa Fe).

The books and accounts of the Secretary and Treasurer were carefully inspected and examined by the various members present, and a motion made by Dr. Crail that the reports of the Secretary and Treasurer, as submitted, be accepted and approved, was seconded by Dr. Beeson and unanimously carried.

Motion was made that the Secretary and Treasurer be allowed a compensation of $25 per month for the past year on account of the duties devolved upon him by reason of these offices, and that the incoming incumbent be allowed the same sum monthly for his services. This motion prevailed.

Motion was made that the Council ratify the action of the Society at the Gallup meeting several years ago, which authorized the Secretary and Treasurer to make payment of $2 each per member to Southwestern Medicine, this action being deemed necessary because the minutes of that meeting and all previous meetings of the Society have been lost. This motion prevailed.

No other business coming before the meeting, it was adjourned at 10 a. m., to meet again at 8:30 a. m., May 29, 1924.

The morning session of the General Assembly was called to order at 10 a. m., by the President, Dr. J. W. Stofer.

The first paper was by Dr. Karl A. Menninger, Topeka, Kansas, on "Nervous Diseases and the General Practitioner". This subject was presented in a very interesting, graphic manner and aroused considerable discussion opened by Dr. A. H. Vogt, Albuquerque, continued by Dr. C. W. Thompson, Pueblo, Colo., Dr. Evelyn Frisbie, Albuquerque, and closed by Dr. Menninger.

Following this Dr. W. S. Lemon, Rochester, Minn., read a paper entitled "One Phase of Pneumonia, viz., Aspiration Pneumonia", freely illustrated by lantern slides. Discussion of this was opened by Dr. C. C. Davis, Albuquerque, continued by Dr. A. M. Forster, Colorado Springs, Colo., Dr. K. D. Lynch, El Paso, Texas, and closed by Dr. Lemon.

The meeting was then adjourned to reconvene at 2 p. m.

AFTERNOON SESSION
May 28, 1924

Meeting was called to order at 2 p. m., by the President, Dr. J. W. Stofer.

The Secretary was instructed to read notices in regard to the Gorgas Memorial, and a resolution relative to the packing, labelling and distribution of concentrated lye and other caustic liquids and corrosive acids.

Motion was made, seconded and carried that the resolution be adopted as read.

Dr. E. C. Fishbaugh, Los Angeles, Cal., read his paper, entitled "Indications, Methods and Results of Ambulatory Treatment of Peptic Ulcer", discussion of which was opened by Dr. W. H. Woolston, Albuquerque, continued by Dr. R. O. Brown (Santa Fe), and closed by Dr. Fishbaugh.

The next paper was by Dr. A. M. Forster, Colorado Springs, Colo., "Case Reports of Certain Diseases Simulating Tuberculosis", Discussion was opened by Dr. W. A. Gekler, Albuquerque, followed by Dr. Orville Egbert, El Paso, Texas, and closed by Dr. Forster.

The next paper was one by Dr. W. A. Gekler, Albuquerque, N. M., entitled "Thyroid and Tuberculosis". Discussion was opened by Dr. A. M. Forster, Colorado Springs, Colo., Continued by Dr. W. S. Lemon, Rochester, Minn., and closed by Dr. Gekler.

Following this, Dr. M. K. Wylder, Albuquerque, N. M. read a paper entitled "Infant Feeding After Weaning", the discussion of which was opened by Dr. E. F. Frisbie, Albuquerque, N. M., and closed by Dr. Wylder.

The last paper of the afternoon session was by Dr. K. D. Lynch, El Paso, Texas, on "Prostatic Obstruction and its Surgical Treatment." Discussion was opened by Dr. G. S. Mc

Landress, Albuquerque, N. M., and closed by Dr. Lynch.

The Society then adjourned to meet at the annual banquet at 7 p. m., at the La Fonda Hotel.

Immediately following the adjournment of the General Assembly, a meeting of the House of Delegates was called to order at 4:30 p. m., by the President, Dr. J. W. Stofer.

The following members were present: Dr. Stofer (Gallup), Dr. Yater (Roswell), Dr. Brehmer (Albuquerque), Dr. Brown (Santa Fe), Dr. P. G. Cornish, Jr. (Albuquerque), Dr. Fiske (Santa Fe), Dr. Gerber (Las Cruces), Dr. Ingalls (Roswell), Dr. Joyner (Roswell), Dr. Miller (Clovis), and Dr. Steed (Deming).

The minutes of the meeting held May 27, 1924, were read and approved, and the report of the Council of date May 28, 1924, was read and motion approved that same be adopted.

A motion was introduced and carried that the attention of the Legislative Committee be called to the fact that no action had been taken on a resolution introduced several years ago requesting the State Legislature to enact a state law to agree with the national Volstead Act, whereby it might be possible to secure upon prescription, alcoholic beverages of all kinds for medicinal purposes.

Motion was introduced and carried approving the action of the President and Secretary and Treasurer in employing a reporter to be present and report the proceedings of all meetings held at this annual session.

The election of officers being next in order, the following nominations were made and duly elected to the respective offices:

President-Elect—

Dr. D. B. Williams, Santa Fe, N. M.

Vice-Presidents—

Dr. C. F. Beeson, Roswell, N. M.

Dr. E. W. Fiske, Santa Fe, N. M.

Dr. C. B. Elliott, Raton, N. M.

Secretary—

Dr. C. M. Yater, Roswell, N. M.

Treasurer—

Dr. C. M. Yater, Roswell, N. M.

Councillors for term of three years:—Dr. Miller, Clovis, N. M., and Dr. Joyner, Roswell, N. M., replacing Drs. Westerfield and Fall, retiring.

Motion was made and approved that a committee of three, to include the Secretary, be appointed to look over the by-laws and recommend such amendments as might be deemed advisable, to report at the meeting to be held May 29, 1924. The President appointed as members of such Committee: Drs. Joyner, Miller and Yater.

The next in order of business was selection of the place for the 1925 meeting. Both Clovis and Albuquerque were mentioned, vote by ballot resulting in the selection of Clovis, N. M., as the place for the annual session in 1925.

No other business coming before the meeting, it was adjourned at 6:15 p. m., to reconvene at 9 a. m., May 29, 1924.

May 29, 1924

A meeting of the Council was called to order at 8:30 a. m. by the President, Dr. J. W. Stofer, (Gallup), the following members being present: Dr. Stofer, (Gallup), Dr. Yater, (Roswell), Dr. Cornish, Sr., (Albuquerque), Dr. Joyner, (Roswell), Dr. Miller, (Clovis), Dr. Steed, (Deming), and Dr. Ward, (Santa Fe).

The Secretary announced that it was necessary for the Council to elect an Associate Editor of the Journal and two members of the Board of Managers and the following nominations were made and duly elected to the respective offices:

Associate Editor—

Dr. C. M. Yater (Roswell).

Members of the Board of Managers—

Dr. C. F. Beeson (Roswell).

Dr. H. A. Miller (Clovis).

Motion was made and carried that the Council authorize the Secretary-Treasurer to pay all bills in connection with the reporting of this annual meeting, as approved by the

St. Joseph's Hospital

PHOENIX - ARIZONA

THE ONLY CLASS-A HOSPITAL IN THE STATE OF ARIZONA.
(College of Surgeons' Classification)

One Hundred and Twenty-five Beds.

SPECIAL FEATURES

Open Staff Organization.

Clinical Laboratory, complete in every respect.

X-Ray Department for Diagnosis and High-Voltage Therapy (Radium Available).

Nurses' Training School, with Three-Year Course.

Beautiful New Nurses' Home.

Medical Library and Doctors' Lounge Room.

Trained Dietician.

Any reputable physician or surgeon of Arizona may bring patients into the hospital for treatment, the only condition being that he agrees to abide by the staff rules of the hospital.

Spanish-speaking nurses on the hospital staff, and every courtesy will be extended patients from Mexico.

Corner of Polk and Fourth Streets

(Indian School or Brill cars pass the door.)

House of Delegates at its meeting May 28, 1924.

No further business coming before the meeting, adjournment was declared at 9:15 a. m.

Immediately following the adjournment of the meeting of the Council, the meeting of the House of Delegates was called to order by the President, Dr. J. W. Stofer (Gallup).

The following members were present: Dr. Stofer (Gallup), Dr. Yater (Roswell), Dr. Cornish, Jr., (Albuquerque), Dr. Gerber, (Las Cruces), Dr. Ingalls, (Roswell), Dr. Joyner (Roswell), Dr. Miller (Clovis), Dr. Steed (Deming), and Dr. Williams (Santa Fe).

The necessity for a definite understanding as to the Counties to comprise the various Councillor Districts was discussed, and motion was made, seconded and carried that the State be divided into six Districts, composed as follows:

District No. 1—Councillor, Dr. Steed, (Deming).

Counties of Hidalgo, Grant, Luna, Sierra and Dona Ana.

District No. 2—Councillor, Dr. Cornish, Sr., (Albuquerque).

Counties of Catron, Valencia, Socorro, Bernaillo, McKinley and Torrance.

District No. 3—Councillor, Dr. Ward, (Santa Fe).

Counties of San Juan, Rio Arriba, Sandoval, Santa Fe and Taos.

District No. 4—Councillor, Dr. Crail, (E. Las Vegas).

Counties of San Miguel, Mora, Colfax, Harding and Union.

District No. 5—Councillor, Dr. Miller, (Clovis).

Counties of Curry, Roosevelt, Guadalupe, Quay and De Baca.

District No. 6—Councillor, Dr. Joyner, (Roswell).

Counties of Chavez, Eddy, Lea, Lincoln and Otero.

A resolution to amend the Constitution was presented and under the rules must lie over until the next annual session.

The Committee appointed to recommend proposed amendments to the By-Laws submitted report, which was accepted and approved by unanimous vote and the amendments ordered adopted.

Motion was made, seconded and carried, authorizing the Secretary-Treasurer to have 500 copies of the Constitution and By-Laws as amended printed, and that each member of the Society be furnished with a copy.

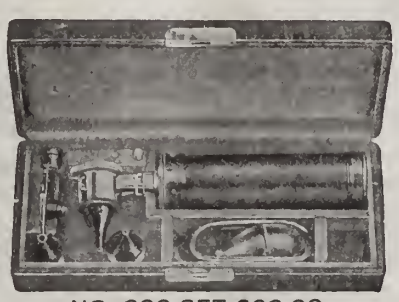
Two resolutions were submitted to be read at the General Assembly—the first expressing appreciation of the courtesy extended the Society by the Santa Fe County Medical Society, by the people of Santa Fe, and by the Elks' Club—which was unanimously approved. The second, proposing to secure legislation, if possible, at the next session of the State Legislature to repeal the present State Prohibition Law and enact in its stead such legislation as would permit the prescribing by physicians of alcoholic liquors for medicinal purposes, as in accord with the present federal law, was referred to the General Assembly for such action as it might indicate.

The Legislative Committee (Dr. D. B. Williams, Chairman), outlined a program of legislation that it proposed to secure at the coming session of the Legislature, representing a synopsis of suggestions received from at least 75 per cent of the physicians throughout the state, who had been interviewed upon the subject. This program met with the general approval of the members and the changes suggested were approved by unanimous vote.

The necessity for funds in connection with the work proposed by the Legislative Committee was discussed and motion was made, seconded and carried that the Legislative Committee be authorized to draw on the Secretary-Treasurer for a sum not to exceed $500 to be used, if necessary, in connection with securing the legislation indicated at the coming session of the Legislature.

Motion was made that the Secretary-Treasurer be given a vote of thanks for the excellent work per-

WELCH-ALLYN—



NO. 200 SET $22.00

No condition is correctly treated until it is correctly diagnosed.

Illumination is the key to diagnosis.

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ANTRUM AND SINUS TRANSILLUMINATOR
MASTOID TRANSILLUMINATOR
INFANT SPECULUM

Sign here

.....

formed by him during the year, which was seconded and unanimously carried.

No further business coming before the meeting, it was adjourned at 10:00 a. m.

GENERAL ASSEMBLY
May 9, 1924

The session of the General Assembly was called to order by the President, Dr. J. W. Stofer, at 10.45 a. m., the first paper being read by Dr. H. A. Ingalls, Roswell, N. M., entitled "Focal Infections". The discussion was opened by Dr. M. K. Wylder, Albuquerque, continued by Dr. P. G. Cornish, Jr., Albuquerque, and closed by Dr. Ingalls.

The next paper was read by Dr. P. G. Cornish, Jr., Albuquerque, N. M., entitled "Treatment of Gall-Bladder Diseases", the doctor announcing that at the last moment he had changed his subject from the one formerly selected and which appeared upon the program. Discussion was opened by Dr. W. H. Woolston, Albuquerque, N. M., continued by Dr. A. C. Scott, Temple, Texas, Dr. M. K. Wylder, Albuquerque, N. M., and closed by Dr. Cornish, Jr.

The following papers were read by title, in the absence of the authors who were unavoidably detained:

"Blood Pressure as Related to Tuberculosis"—Dr. W. H. Cryer, Deming, N. M.

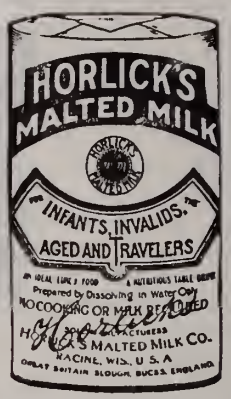
"Nasal Tuberculosis"—Dr. S. A. Schuster, El Paso, Tex.

"Acute Intestinal Obstruction"—Dr. J. H. Hannett, Gallup, N. M.

A report was made by the Secretary of the business meetings of the Council and House of Delegates, and a resolution was presented proposing to secure legislation to enable the prescribing by physicians of alcoholic liquors for medicinal purposes. On vote the motion was lost by 11 to 9.

The President announced that during the year the Secretary of the Society had been very active and through his efforts the membership had been practically doubled, and that a vote of thanks was due him

UNIFORMLY RELIABLE
IN THE DIETETIC
TREATMENT OF
YOUR PATIENTS
THE ORIGINAL



Avoid Imitations
PRESCRIBED
EXTENSIVELY
BECAUSE OF ITS
PROVED NUTRIENT
ADVANTAGES

As a General Antiseptic

in place of

TINCTURE OF IODINE

Try

Mercurochrome-220 Soluble
(2% Solution)

It stains, it penetrates, and it furnishes a deposit of the germicidal agent in the desired field.

It does not burn, irritate or injure tissue in any way.

Hynson, Westcott & Dunning
BALTIMORE, MARYLAND

on account of his tireless efforts in be half of the Society.

Dr. Wylder made motion to that effect, stating that the attendance at this meeting was far better than that of any meeting of the State Society for a number of years, this, without doubt, being due to the splendid efforts of the Secretary, Dr. C. M. Yater. The motion was duly seconded and unanimously carried.

Dr. Yater expressed his appreciation of the action of the Society and proposed that a vote of thanks be also extended to the Fraternal Delegate from the State of Texas, Dr. A. C. Scott, of Temple, Texas, for his assistance in all the meetings, for the excellent paper read by him, his hearty participation in the discussions, and the interest shown. This motion was duly seconded and unanimously carried.

Adjournment sine die at 12:15 p. m.

NOTES OF THE MEETING

"The best meeting we have had in twelve years" was the opinion of some of the old-timers, as expressed after it was all over. "The very best meeting we have ever had" was the way the young members expressed it.

On to Clovis is the cry for next year.

Seventy-five were registered as being among those present—not a bad showing in a year when financial conditions have been anything but good.

Many of those who were elected to membership in the Society at this meeting were present at the various scientific sessions and showed interest in the proceedings.

Members from the Southwest who attended the meeting in palm beach suits and straw-hats, encountered chilly blasts, and it was not an uncommon sight to see members in heavy overcoats wearing straw-hats. At that the weather was delightful and the beautiful scenery of old Santa Fe was thoroughly enjoyed.



Elastic Hosiery

Abdominal Supporters

made to order from fresh, live rubber, by competent workmen, giving you a perfect fit and fresh durable goods. Also Office Furniture and Dressings. An Up-to-Date Stock at right prices.

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Hay Fever Prophylaxis

NOW is the time to begin the preventive treatment of the late summer or early fall cases. Ragweed Pollen Extract (P. D. & Co.) is available for diagnosis and prophylaxis; also for therapeutic treatment in cases not seen in time for prophylaxis.

The complete package contains three 5-cc vials of Pollen Extract (Nos. 1, 2 and 3), No. 2 being ten times as concentrated as No. 1, and No. 3 ten times as concentrated as No. 2. The physician is thus enabled to begin with a small dose and increase gradually, most of the diluting necessary having been done beforehand by the manufacturers. A vial of diluent is supplied for giving bulk to very small doses, such as 0.1 cc and for use in applying differential resistance tests.

Vial No. 3 can be used in diagnosis; or a special diagnostic package can be ordered containing five capillary tubes of extract—enough for five tests.

Your dealer will order for you. Shall we send you our booklet on Pollen Extracts?

PARKE, DAVIS & COMPANY
DETROIT, MICHIGAN

Pollen Extracts, P. D. & Co., are included in N. N. R. by the Council on Pharmacy and Chemistry of the A. M. A.

The Management of an Infant's Diet

A Temporary Diet

in

Summer Diarrhea

Mellin's Food . . . 4 level tablespoonfuls
Water (boiled, then cooled) **16 fluidounces**

To be given in small amounts at frequent intervals.

This mixture supplies the principal fuel utilized in the body for the production of heat and energy and furnishes immediately available nutrition well suited to protect the proteins of the body, to prevent rapid loss of weight, to resist the activity of putrefactive bacteria, and to favor a retention of fluids and salts in the body tissues.

Mellin's Food Co., 177 State Street Boston, Mass.

Hospital Supplies
Physicians' Equipment
Surgical Instruments
X-Ray Apparatus

R. L. SCHERER & CO.

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736 S. Flower St., Los Angeles

THE APPROACH OF THE SOUTHWEST ASSOCIATION MEETING

The next medical association meeting of importance will be the Medical & Surgical Association of the Southwest, which will meet in Phoenix in November, probably immediately following the State Fair week. This is the meeting at which the southwest as a geographical unit produces its annual pageant of medical and surgical achievements. It will be the privilege of Maricopa County, this year, to supply the clinics, both medical and surgical. Phoenix is more fortunately equipped this year than at the 1921 meeting. The surgical department of the Sisters' Hospital has been built since 1921, and its four major operating rooms and two specialist rooms offer much better facilities than the cramped quarters in which the surgeons had to work at the last meeting. The Deaconess Hospital, opened a year ago, is well equipped for clinical work, having three major and three specialist operating rooms. With these facilities the entire forenoons will be given up to the clinics, and the surgeons of Maricopa County will have abundant opportunity to show their work. Nor will the internists and other specialists lack opportunity. Details of the program will be announced as they develop. It has been suggested that the entire program be given over to the members of the Southwest Association, in order to carry out the idea that this is their demonstration, and that no guests be invited to take part in the program.

GRANT COUNTY (N. M.) MEDICAL SOCIETY

The regular monthly meeting of this society was held on Friday, June 27th, with about fifteen members present. The new by-laws and constitution under which the society was reorganized were read and adopted.

The paper of the evening was "Some Interesting X-Ray Prints," pre-



Are You Procrastinating?

Procrastination may have its merits when properly applied but when your reputation, your bank account and your future prestige are assailed you want to strike---short, sharp and effective.

The greatest hazard you assume is your professional liabilities.

for
Medical Protective Service
Have a
Medical Protective Contract

The
Medical Protective Co.
of
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sented by Dr. W. G. Carhart of Fort Bayard. The x-rays presented brought out a lively discussion from many of the members present.

The question of discontinuing the regular meetings during July and August was discussed, but it was decided to continue the meetings in order that the interest in the society might not lag.

Bayard Sullivan, Secretary.

NEW MEXICO NEWS ITEMS

Dr. E. M. Fisher, of Roswell, N. M., has been quite sick with an attack of facial erysipelas and, at last account, was still confined to bed.

Dr. W. C. Buchly, of Roswell, N. M., is spending several weeks in St. Louis on a combined vacation and study expedition.

DR. JAMES H. WROTH,

In the death of Dr. James H. Wroth, of Jemez Springs, one of the pioneer practitioners of New Mexico passed away. Dr. Wroth was born in 1855, graduated from the University of Pennsylvania in 1878, and came to New Mexico in 1895. He was much beloved by his many friends and those members of the profession who were thrown in contact with him.

SAVE MONEY ON
YOUR X-RAY SUPPLIES
Get Our Price List and Discounts on Quantities Before You Purchase
HUNDREDS OF DOCTORS FIND WE SAVE THEM FROM 10% TO 25% ON X-RAY LABORATORY COSTS
AMONG THE MANY ARTICLES SOLD ARE
X-RAY FILMS. Duplitized or dental—all standard sizes. Eastman, Super Speed or Agfa films. Heavy discounts on standard package lots. X-Ograph, Eastman and Foster metal backed dental films. Fast or slow emulsion.
X-RAY PLATES. Paragon brand for finest work.
POTTER BUCKY DIAPHRAGM. Cuts out secondary radiation, insuring finer detail and contrast. Price, $250.
BARIUM SULPHATE. For stomach work. Finest grade. Low price. Special price on 100 pound lots.
COOLIDGE X-RAY TUBES. 5 styles, 10 or 30 milliamp.—Radiator (small bulb), or broad, medium or fine focus, large bulb. Lead glass shields for radiator type.
DEVELOPING TANKS. 4, 5, or 6 compartment stone, will end your dark-room troubles. Five sizes of enamel steel tanks. Shipments from Boston, Brooklyn, Chicago or Virginia.
DENTAL FILM MOUNTS. Black or gray cardboard with celluloid window or all celluloid type, one to fourteen film openings. Special list and samples on request. Either stock styles or imprinted with name, address, etc.
DEVELOPER CHEMICALS. In bulk or ½, 1, 2 and 5 gallon sizes. Paragon, Eastman or X-Ograph.
INTENSIFYING SCREENS. Sweetbriar, Patterson or T. E. screens alone or mounted in cassettes; reduces exposure from 6 to 18 times. All-metal cassettes several makes.
LEADED GLOVES AND APRONS. High grade, low price.
FILING ENVELOPES with printed x-ray form. Special price on 2,000 assorted.
PARAGON X-RAY PLATES
If You Have a Machine Get Your Name on Our Mailing List
GEO. W. BRADY & CO.
790 So. Western Ave. CHICAGO

A Medical Eductation

is seldom completed in college. There is some new development in medical science almost every day. Iletin, radium and x-ray are recent examples. A physician must read to keep abreast of the new appliances and remedies.

As a rule, the FIRST authentic information you obtain regarding the use and price of new instruments; the location of clinics and institutions for special treatment; the discovery and application of various therapeutic remedies, is found in the advertising pages of your own STATE MEDICAL JOURNAL.

Here are a few quotations from recent advertisements in the State Journal:

"Our x-ray department includes the new 280,000-volt deep therapy apparatus."

"Gelatine contains 5.9% of lysine, the natural amino-acid so essential to human growth."

"Authorities say the proportion of calories, proteins and calcium is greater in oats than any other grain."

"Calcreose differs from Creosote in that it apparently does not have any untoward effect on the stomach."

You will surely miss much that is NEW if you fail to READ THE ADVERTISEMENTS.

Announcement of
LECTURE COURSES
by
C. M. SAMPSON, M.D.

PHYSIOTHERAPY

Places and Dates
Salt Lake City, Utah, Sept. 29-Oct. 4, 1924.
Denver, Colorado, Oct. 6-11, 1924.
Omaha, Nebraska, Oct. 13-25 (2 weeks).

PLAN TO ATTEND one of these courses that are being held throughout the country by the foremost authority in the profession today, and one who has had the largest clinical experience in PHYSIOTHERAPY.

THE TIME is not long—only 5 days of intensive work, covering the field most thoroughly and scientifically of DIATHERMIA, ACTINOTHERAPY, X-RAY THERAPY, STATIC MODALITIES, MORSE WAVE GENERATORS and HYDROTHERAPY.

THESE COURSES are proving a success and are attended by all men in various specialties of Medicine and Surgery. Only **Ethical Members** are permitted to attend—Aids, Nurses and Technicians must be vouched for properly. Price of course—$25.00. When registering send $5.00—balance at first lecture. Do not forget to specify which course you wish to attend.

Applications for any course must be sent to the

Secretary of Sampson's Lecture Course

324 South 19th Street, Omaha, Nebraska



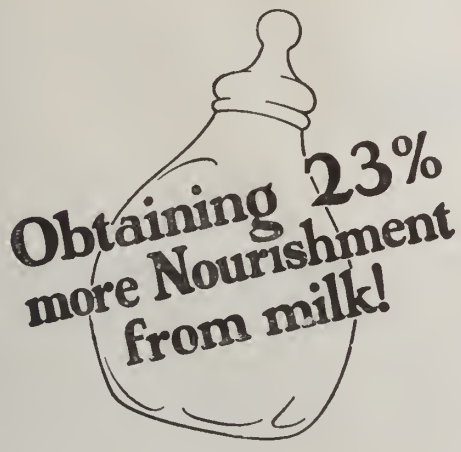
Infant Mortality Rate Higher in 1923 than 1912---Why?

Of what significance is the fact that a great many babies can digest and properly assimilate Dennos, even though other foods and modifications have failed to produce results? Dennos contains the food values of whole wheat. When properly prepared it acts as a protective colloid, preventing, to a large degree, intestinal fermentation and diarrhea.

Samples and literature on request.

DENNOS *The milk modifier*

THE DENNOS FOOD COMPANY, PORTLAND, OREGON



SUCH a remarkable statement as this, authoritatively supported, must command the attention of every physician who contends with mal-nutrition in infant, growing child or adult.

In the research of the specific uses of edible gelatine in the dietary, conducted by T. B. Downey, Ph.D.—Fellow at the Mellon Institute, University of Pittsburgh, it was conclusively proved by standard feeding experiments that 1% of pure, plain gelatine dissolved and added to milk, will increase by 23% the nourishment obtainable from that milk.

The reason for this is found in Zsigmondy's determinations that plain edible gelatine is the most powerful of the protective colloids which, therefore, when added to cow's milk stops the immediate precipitation of the milk casein by the gastric juices, preventing excessive curd formation. In other words, the action of gelatine-ized cow's milk in the infant's stomach is similar to the action of mother's milk.

In infant feeding, this dietary discovery is of inestimable value, especially at this time of year, in the prevention of milk colic, regurgitation, and bowel disorders, and in promoting the complete absorption of the milk nutriment with the minimum of digestive effort.

For the perfect "gelatine-izing" of milk, it is always advisable to prescribe only the purest of gelatine—Knox Sparkling Gelatine.

The correct formula prescribed by physicians for "gelatine-izing" milk is as follows:

Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in ½ cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the quart of cold milk or regular formula.

FREE

To Physicians and Hospitals

We shall be glad to send free, upon request, additional copies of the above formula, together with SCIENTIFIC REPORTS on the importance of plain granulated gelatine in the dietary.

In addition to the family size packages of "Plain Sparkling" and "Sparkling Acidulated" (which latter contains a special envelope of lemon flavoring), Knox Sparkling Gelatine is put up in 1 and 5 pound cartons for special hospital use.

KNOX
SPARKLING
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"The Highest Quality for Health"

Charles B. Knox Gelatine Laboratories
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Free from harmful acidity, artificial coloring and synthetic flavoring.



Weed Hay Fever



THE Late Summer and Early Autumn Type of Hay Fever is caused by many of the common weeds, as—Ragweed, Russian Thistle, Sage Brush—the species differing widely according to locality. To assure specific treatment diagnostic tests are essential. To assure preseasonal treatment early diagnoses should be made,—otherwise the less desirable, though often beneficial, coseasonal treatment will be involved. List of late flowering weeds, showing regional distribution and time of pollination, sent on request.



GIANT RAGWEED Ambrosia trifida

RUSSIAN THISTLE Salsola pestifer

SAGE BRUSH Artemisia tridenta

The Arlington Chemical Company

Yonkers, New York

NEW AND NONOFFICIAL REMEDIES, 1924, containing descriptions of articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1924. Cloth. Price, $1.50. Pp. 422+XXXIX. Chicago: American Medical Association, 1924.

Every physician is continually bombarded with literature, scientific and otherwise, concerning the newer remedies. He has neither the time nor the opportunity to investigate all even of the more promising preparations, and obviously he cannot try them upon his patients without investigation. He must know the composition of the article, must know that the claims under which it is marketed are true; in other words, he must have some critical statement of the actions, uses and dosage as well as of the chemical and physical nature of the product.

This need of the physician is met in New and Nonofficial Remedies, which is the official publication through which the Council on Pharmacy and Chemistry annually presents to the American medical profession disinterested, critical information about the proprietary preparations which the Council deems worthy of recognition. In addition to the description of these proprietary preparations, the book treats those nonofficial remedies which, in the opinion of the Council, are worthy of consideration.

New and Nonofficial Remedies is a book that a physician who prescribes drugs cannot afford to be without. The book contains information about medicinal products which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn street, Chicago, on receipt of one dollar and fifty cents.

ARIZONA NEWS ITEMS

Dr. and Mrs. Ancil Martin of Phoenix are touring Europe this summer. Word has been received that they are enjoying the trip immensely, that the golf courses are very attractive, and the doctor can play an occasional hole in par.

Dr. Jeremiah Metzger of Tucson is spending the summer abroad, visiting Switzerland and other countries of continental Europe.

Dr. Samuel H. Watson of Tucson, after visiting the American Medical Association, is spending a month in the New England states.

Dr. Ira E. Huffman of Tucson, after a month in the White Mountains of Arizona, has returned to his practice.

Dr. C. W. Mills of Tucson is leaving about the 20th of this month, traveling by boat from New Orleans to New York, intending to spend two months in the New England States.

Dr. and Mrs. C. A. Thomas returned to Tucson about July first, after spending a month in Chicago, attending the American Medical Association, in New York and Rochester (Minn.), at clinics.

Dr. R. J. Callender of Tucson left July first for a month's vacation at Mt. Lemon.

Dr. John W. Flinn of Prescott has returned home after several weeks' sojourn in the east, during which he attended his class reunion at McGill University, Montreal.

Dr. Willard Smith of Phoenix is in the Sisters' Hospital, Phoenix, recuperating from a major operation. He is planning an extensive vacation later in the summer which will conclude with the Congress of Surgery and College of Surgeons, in October.

Dr. J. N. Triolo, formerly of El Paso and Old Mexico, is now located at McNary, Ariz. This important lumber town is undergoing a rapid development, and their hospital is to be enlarged and improved. Dr. Triolo has had a long and varied experience in industrial surgery.

Dr. Kimball Bannister of Phoenix is spending several weeks in the Chicago clinics, where he has many professional friends.

Dr. Madison J. Keeney, formerly of Phoenix, but now located in Los Angeles, is the proud father of a recently born son. Truly, there is something wonderful in the Los Angeles climate.

Dr. Leonard Wood, formerly associated with Dr. J. J. McLoone of Phoenix, in the practice of eye, ear, nose and throat diseases, is now established at Miami, Arizona. Although in private practice, he has the use of the privileges of the Miami-Inspiration Hospital, and from all reports is meeting with a well deserved success in that field.

Dr. M. I. Leff of El Paso, Texas, has accepted a position in Mexico, and is now located at San Luis Potosi, with the Companio Metalurgica Mexicana.

Dr. J. I. Butler of Tucson spent some weeks in Baltimore and visiting friends in his old haunts in the state of Connecticut. He recently returned to Tucson.

Dr. Harry R. Carson of Phoenix, after visiting the American Medical Association in Chicago, is spending the remainder of the summer in Baltimore and vicinity, making a special study of diseases of children in addition to his first love—anesthesia.

Dr. James M. Meason of Chandler, Ariz., suffered the loss of his wife during June. His many friends in the professional circles of Maricopa county sympathize with him in this bereavement.

On June first the annual hegira of St. Luke's Home from Phoenix to Prescott occurred. All the patients, with Dr. E. W. Phillips, medical director, are now located at St. Luke's in the Mountains, Prescott.

FOR ADMINISTERING THE DOYLE Chlorinometer TRADE MARK CHLORINE GAS

You, too, can now Administer Chlorine Gas!

The Following Record

compiled by Lt. Col. E. B. Vedder, M.D. and Capt. H. P. Sawyer, M.D. (Medical Corps, U. S. A.) shows the remarkable results secured by employing CHLORINE GAS for the treatment of respiratory diseases. (Reproduced from the A. M. A. Journal of March 8, 1924).

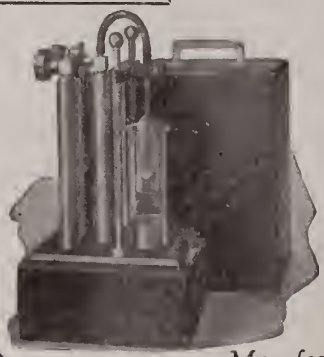
Diagnosis	No. of Cases	Cured		Improved		No Change	
		No.	%	No.	%	No.	%
Coryza	388	288	74 2	91	23 5	9	2 3
Acute laryngitis and pharyngitis	127	99	78 0	24	19 0	4	3 1
Acute bronchitis	241	192	80 0	47	19 5	2	0.5
Chronic rhinitis	106	33	31 1	41	38 6	32	30 2
Chronic bronchitis	47	34	72 3	12	25 5	1	2 1
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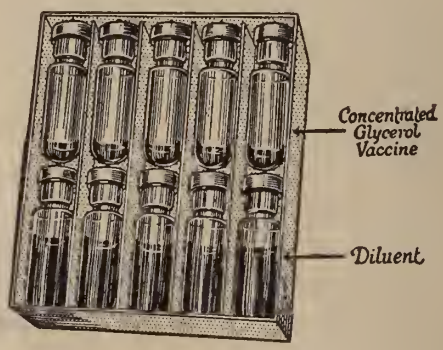
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For Table of Contents—See Advertising Section Page 1

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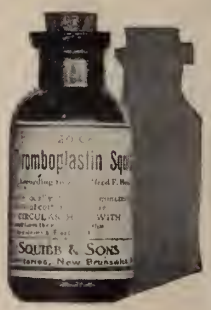
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CONTENTS

ORIGINAL ARTICLES

ANESTHESIA AND ANESTHETICS 357
Dr. W. V. Whitmore, Tucson, Arizona.
(Discussion.)

MYOCARDIAL DEGENERATION 363
Dr. F. T. Fahlen, Phoenix, Arizona.
(Discussion.)

PUBLIC HEALTH 368
Dr. Z. Causey, Douglas, Arizona.
(Discussion.)

MEDICAL TREATMENT OF PEPTIC ULCER, WITH REPORT OF SIXTY CASES 374
Dr. Frank J. Milloy, Phoenix, Arizona.
(Discussion.)

EXTENSION TREATMENT OF SUPERCONDYLOID FRACTURE OF THE HUMERUS 381
Dr. Isaac L. Garrison, Phoenix, Arizona.
Discussion.

APPENDICITIS DURING PREGNANCY 383
Dr. Victor M. Gore, Tucson, Arizona.
Discussion.

EDITORIAL

HEREDITY AND CANCER 390

MEDICAL EXPERT TESTIMONY 391

PERSONALS AND NEWS—BOOK REVIEW 392-400

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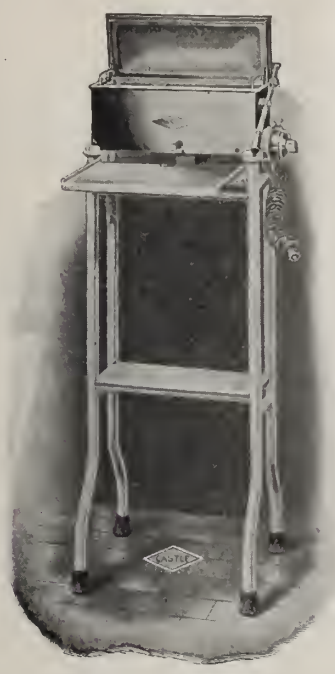
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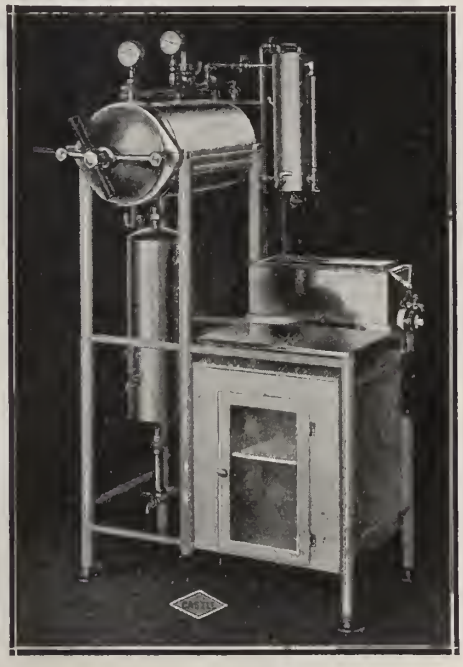
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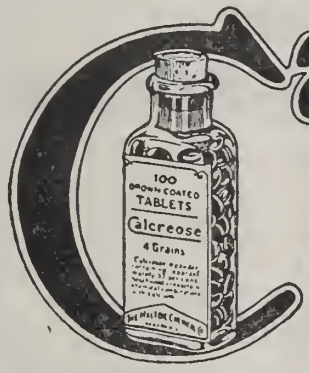
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ANESTHESIA AND ANESTHETICS

W. V. WHITMORE, M. D., Tucson, Arizona.

This paper is not intended to be a scientific treatise. During the past thirty-five years — averaging just about 100 anesthetics each year—I have absorbed, along with considerable chloroform and ether, some quite fixed views concerning their proper administration. These views I pass on to you for whatever they may be worth.

When I entered the profession, although writers on the subject of anesthetics were urging skill and experience as a prerequisite to their administration, yet the general sentiment of the profession towards this work seemed to be that any doctor who could not do anything else could very safely be entrusted with the anesthetic. My first intimation of any change of sentiment in this respect occurred some thirty-five years ago, when I read in the New York Medical Journal the following statement by a man prominent in the profession: "If I were to undergo a surgical operation tomorrow, I would be more interested in the question of who was to administer the anesthetic than I would be in the question of who was to perform the operation, for the anesthetist bears the patient to the very edge of death and holds him there while the surgeon does his work." Since reading this statement I have never considered the administration of the anesthetic menial.

The first information given to me upon my arrival in Tucson, thirty-two years ago last Sunday, was to the effect that chloroform was unusually well borne in this southwestern country. For some eighteen years I presume I did not give ether a half dozen times. About fourteen years ago a change was made to ether.

During the seven years that I was a member of the Board of Medical Examiners of Arizona I never failed to include a question under Materia Medica relating to anesthetics. The question might read, "What general anesthetic do you prefer and why?" or, "What are the advantages and disadvantages of chloroform and ether as anesthetics?" or "What are the indications and contraindications of chloroform and ether?" Whatever the wording of the question and, notwithstanding the fact that I personally used chloroform, what I wanted to ascertain was whether these applicants knew when chloroform should be used and when ether. With that fact established, I cared very little whether they said they preferred ether, because it was safer, or chloroform, because of its numerous advantages.

The fact, which I early accepted and have many times since demonstrated; viz., that chloroform is so well borne in this section, has aroused my curiosity. I have never read or heard any explanation of the fact. My theory is that it is because of our pure atmosphere. The chloroform is able to volatilize so readily, to mix

(*Read before the Thirty-Third Annual Session of the Arizona State Medical Association, at Phoenix, April 24-26, 1924.)

uniformly with the air, with the result that the chloroform is properly diluted. Our warm climate may have something to do with it or other factors that have not presented themselves to me.

It does not require very much imagination to see conditions as they exist in other localities, e. g., on the Atlantic coast. With the air laden with humidity, almost to the point of saturation, it becomes nearly as impervious to the entrance of chloroform as are the metallic walls of the inhaler. The patient gets inhalations of very concentrated chloroform, with the attendant serious results.

From my consideration of anesthetics, I drew another conclusion, which I believe just as firmly as the above; viz., that any climate favorable to the administration of chloroform is, necessarily, unfavorable to the use of ether; not dangerous, but just the opposite—difficult. My reason is so obvious that I hardly need mention it. The ether dissipated itself unduly into the surrounding desert. This view is substantiated by the testimony of one of my colleagues, who rather recently came from Tulane University. He states that both in the Imperial Valley and in Tucson much more ether is required to produce anesthesia than in the humid gulf region. Bastedo has something of this idea in mind, when he says in his rather recent work on Materia Medica: "It is reported that in hot countries and at high altitudes anesthesia with ether is difficult to obtain." Not identical conditions, but the same principle is involved.

Some remarks appropriate to both chloroform and ether, after which they will be considered separately. Chloroform and ether are both general protoplasmic poisons. The study of general anesthesia is, then, a study of toxicology, and the production of chloroform or ether anesthesia is the production of acute chloroform or ether poisoning.

The objects of general anesthesia are to abolish pain, consciousness and muscular resistance.

No person can administer chloroform or ether very long without asking himself how the anesthetic effects are produced. We are told that the anesthetic combines with the fat globules of the blood and is thus carried to the brain. There the effect is produced by diminished oxidation. It seems that the anesthetics render the oxygen carriers in living tissues incapable of carrying oxygen. The cells of the cerebral cortex are especially sensitive to lack of oxygen.

For convenience, the production of anesthesia may be divided into four stages:

1. Local action and blunted perceptions.

2. Intoxication, the stage of excitement, of which we see comparatively little. It is much more frequent with ether than chloroform, possibly because ether has identically the same chemical elements as alcohol, although in slightly different proportions.

3. Stupor or partial surgical anesthesia. There is unconsciousness from which one can be aroused only with difficulty, although he will wince if the knife be used.

4. Coma and muscular relaxation or complete surgical anesthesia. Beyond this stage we get collapse and, finally, death, a highly regrettable outcome to our voluntary poisoning.

Of the three methods of inhalation of anesthetics, the open cone method is restricted to ether, but the drop method and the closed inhaler apply to both. From what has been said of this climate for ether administration the closed inhalers would seem ideal. They require only one-third as much anesthetic and are arranged to furnish the proper percentage of concentration of chloroform or ether. As far as I am able to learn, the only use of the closed inhaler, in Tucson, is in connection with gas. I would like to hear the experience of others in this respect.

Four percent of chloroform will induce anesthesia and two percent will maintain it. Six percent of ether will induce anesthesia and three percent

will maintain it. Anesthesia, for any length of time, with a vapor concentration of chloroform above 2 percent or of ether above 4 percent is dangerous.

Anesthesia may be produced by chloroform in three to five minutes, requiring about one-half dram, while ether may require ten to fifteen minutes of time and five to ten ounces.

With both chloroform and ether the danger lies in overconcentration of the vapor or surcharging of the blood by too rapid administration rather than in the total quantity of the drug employed in any given anesthesia.

CHLOROFORM

It has ten advantages over ether. (1) Smaller dose; (2) simplicity of administration; (3) easier and more pleasant for patient; (4) less marked degree of intoxication; (5) anesthesia more quickly produced; (6) anesthesia more quickly recovered from; (7) no bronchial or lung irritation; (8) respiratory mucus and saliva not excessive; (9) nausea and vomiting less common after-effects; (10) is not inflammable.

But there are three special dangers of chloroform anesthesia:

1. Early heart failure. This comes from too concentrated vapor at the start. Death in this way takes place before enough chloroform has been absorbed to cause death by systemic action. Ninety percent of casualties take place in the first fifteen minutes.

2. Cardiac depression with narrow margin of safety. Chloroform is much more depressing to the muscles of the heart and arteries and to the medullary centers than is ether. In addition, the chloroform has a special affinity for the heart muscle, so that it is less readily discharged from it than ether. Hence resuscitation is difficult. These factors make the margin of safety for chloroform a narrow one, the stage of complete anesthesia being much nearer the stage of collapse than with ether. Furthermore, when collapse comes on from ether, the patient may often be restored with comparative ease, while when the signs of collapse appear from chloroform, the chances of recovery are small.

3. Delayed chloroform poisoning. This may appear from a few hours to a week. In the former cases the patient does not fully recover from the anesthesia and gradually passes into a state of prostration, with delirium, coma, and death. In the more delayed cases the patient recovers from the anesthesia and is apparently doing well, and the first indications of anything wrong are marked cerebral disturbances, periods of wild delirium alternating with periods of stupor or coma. Postmortem examination reveals extensive fatty degeneration of liver, kidneys and heart. Although, as a rule, children, as well as the aged, bear chloroform well, yet delayed chloroform poisoning has occurred most commonly in children, and it has rarely been recovered from.

It is because of these three great dangers that chloroform has been quite generally abandoned as a general anesthetic.

ETHER

The ten advantages of chloroform are easily offset by the fact that ether is safer. Why safer and how much?

As has been stated, ether is much less depressing to muscles of heart and medullary centers than chloroform, consequently the margin of safety is a wider one.

In addition to this, chloroform depresses the circulatory center before the respiratory. With ether this order is reversed. The result is that chloroform may stop the heart, while respiration and color and appearance of face are apparently normal. With ether there is some change of respiration or color or appearance of the face, while yet the heart is still doing good work. In other words, with ether there is a warning of impending trouble, while chloroform gives no warning whatever.

With chloroform one fatality occurs in every 2,000, 3,000 or 5,000 administrations. With ether, one in

every 10,000, 12,000 or 15,000, ether being three to five times safer.

I have found that the Allis inhaler has several advantages over other open cone methods of administering ether; (1) it fits the face well; (2) the metal walls prevent a horizontal dissemination; and (3) at any time after the initial bronchial irritation has passed, either to get patient more promptly under the anesthetic or to quiet patient at first sign of returning consciousness, the hand placed over the top makes practically a closed type of inhaler.

Ether is preferred to chloroform in almost all cases, including those with heart or kidney disease. Formerly there was a difference of opinion as to whether ether or chloroform should be used in case of diseased kidneys. We have known for some time that ether produces albuminuria about twice as frequently as does chloroform. But from what we now know about delayed chloroform poisoning, there can no longer be any question. It is true that, in the case of kidney disease, it is the choice of the lesser of two evils. But it is wiser to take chances of a possible temporary functional disturbance by ether than of a possible permanent inflammation or, worse, an actual degeneration of kidney structure by chloroform. So I repeat, in heart or kidney troubles, use ether.

Because of its local irritation, ether is not employed in cases with severe bronchial or pulmonary inflammation.

It is not used in the aged, because the stimulation of the ether may rupture an already weakened artery.

In brain surgery there is danger of a rise in general arterial pressure from ether and a resultant extensive oozing of blood. For this reason most of the surgeons use chloroform, although Crile prefers ether because of the special danger, in such surgery, of depression of the medullary centers.

A few gratuitous suggestions to our friend, the surgeon. He should be reasonably patient, whenever a little delay occurs. Perhaps the most frequent one is the patient straining just about the time the abdominal wound is being closed. Well, this is in keeping with all other experiences of life, viz., when anything goes wrong, it is always at the wrong time.

I have always considered vomiting from ether, during the operation, as inevitable in a small percent of cases. If this be true, then, naturally, the anesthetist dislikes being spoken to as if he were the cause of the vomiting.

Some surgeons have a great propensity to explore everything explorable. It is not unusual for the patient to go through the main work of the operation without a move, and yet flinch when some new regions are invaded. Instead of this being a reflection upon the anesthetist, I claim it is the highest compliment that can be paid him. For there is proof positive, ocular demonstration, if you wish, that the patient has been kept under for the work of the operation with the widest possible margin of safety. It requires no skill to keep a patient profoundly anesthetized from beginning to end. Any corner grocer can do that. But skill is required in seeing that the patient gets not one iota of depression beyond what is absolutely necessary, that he returns to his room in the best possible general physical and mental condition.

Bastedo supports my position strongly. After warning us to avoid anesthetizing beyond the point necessary, and even in stronger language, forbidding us to "push" the chloroform or ether unduly at any unexpected signs of returning consciousness, he adds; "It is better to proceed carefully, even though the surgeon be kept waiting."

DISCUSSION

DR. H. R. CARSON (Phoenix): I was very much pleased to hear a paper on anesthesia and this paper was especially good and I want to commend Dr. Whitmore for bringing it to us. It seems to me that we should have something on anesthesia at every state meeting.

I certainly agree with the doctor that the fear of the anesthetic is greater to most people than the fear of the operation. Some

psychology could be used by the surgeon to help reassure the patient by telling him that the one selected to give the anesthetic has some special skill in giving anesthetics; thus the patient might come to the anesthesia room with confidence in the anesthetist.

In regard to chloroform being safer in this climate, I am sure that this is true. Not because it is warmer, because most of our surgery is done in the winter or cooler months, when we usually, in early morning (the most frequent surgical periods), have to heat the rooms; but because of the humidity being less. In our dry air, a greater evaporation of either chloroform or ether takes place from the mask and naturally lesser concentration of vapor to the patient; thus the danger of high concentration of chloroform vapor is lessened.

We do not use chloroform to any extent here in Phoenix. I have not used it at all in several years. I have not seen a chloroform bottle on the anesthesia table at the Sisters' Hospital for a long time; at the Deaconess, the chloroform bottle on the anesthesia table has been sealed all winter.

Ether, of course, is safer than chloroform; but in choosing an anesthetic agent, choose the one that the anesthetist is most familiar with using. Some men, because of experience, could use chloroform more safely than ether; but usually the anesthetist is more used to giving ether.

The matter of the closed inhaler recalls an old discussion—open or closed methods of anesthesia—carbon dioxide in rebreathing being a respiratory stimulant. But in a large mask there is considerable space between the face of the patient and the gauze of the mask and naturally considerable rebreathing. In spite of the rebreathing of carbon dioxide stimulating respiration, oxygen with the ether vapor aids relaxation.

The next speaker is probably going to extol local anesthesia and make a comparison between ether and local anesthesia—(one-half of one percent novocain infiltration). I think such a comparison unfair; so I will suggest a comparison of nitrous oxid and oxygen with his local anesthetic. With a little ether (five to ten percent) added or ethylene for relaxation, we have a safe and ideal anesthetic. A large percentage of patients prefer not to know what is going on, even though the local anesthetic would give them no pain, some are temperamentally unfit for local anesthetic work; but for other selected cases it is ideal in the hands of experienced local anesthetists; here again the anesthetic that is best or safest to use depends on experience of the surgeon with its use. We are looking forward to using ethylene next winter—and then we hope to have local anesthesia compared with a safe and relaxing, non-nauseating anesthetic, from which patients awake immediately as with nitrous oxid.

Ethylene and ether are both combustible; the range of explosive mixtures for ethylene and ether (Bureau of Explosives for the United States and Canada) when mixed with air is as follows:

Ethylene, 4.2% to 14.5%.
Ether vapor, 2.9% to 7.5%.

From Bureau of Standards at Washington the following percentages mixed with air are regarded as combustible:

Ethylene, 3.3% to 25.6%.
Ether vapor, 1.7% to 48%.

"From these figures it appears that the combustible range for ether lies within the mixtures ordinarily used for anesthesia; while for ethylene, it is far below the mixture which must be employed to secure narcosis. Therefore, ethylene is possibly safer than ether as used in anesthesia."—(E. I. McKesson, M. D., Toledo, Ohio.)

DR. W. O. SWEEK (Phoenix): I very much agree with Dr. Whitmore's paper. He spoke of deaths from ether, deaths from chloroform, etc., and there is a great lack of accurate statistics. The statistics vary so widely on the actual mortality that we do not know today just what the danger of ether and chloroform is, but almost any person who has been around hospitals every day for any length of time has seen deaths that were attributed to first one thing and then another and very unsatisfactorily explained. As our knowledge of anesthesia increases, those deaths will, perhaps, quite a number of them, come under general anesthesia. I do not worry much any more about deaths from general anesthesia, because I seldom use it. The small percentage of patients who cannot take local anesthesia is so small that it is hardly worth mentioning. In over 400 cases, I found three such patients, and I do not mean minor operations. I mean abdominal sections, operations on the head to fractures of the bones of the extremities, etc. The surgeon of the future will come more and more to realize that surgical technic is not acquired in the operating room on human beings, but is acquired in the animal room. No surgeon can develop a surgical technic sufficiently careful and delicate enough to carry through a large majority of surgical cases solely in the human operating room. The performing of surgery under local anesthesia depends on several factors. The confidence that the patient has in you is one of the great factors; I would almost say it is the greatest factor. I consider the next greatest factor is the accuracy in clinical diagnosis.

The exploration of the abdomen that Dr. Whitmore so very nicely alluded to is positively ridiculous. It is so inconsistent to watch a surgeon enter the upper abdomen and operate for duodenal ulcer or gastric ulcer and paw around for thirty minutes to find it, and see the same surgeon half an hour or an hour or so later enter the abdomen for appendix disease, poke his hand up in the upper abdomen and say everything is fine up there. That is inconsistent. I have found that the abdomen can be explored to so much greater advantage under local anesthesia than it can under general that if I

have a case that I anticipate the use of general anesthesia in, I enter the abdomen and make my exploration first and then give a general anesthesia, if such is required. You have a very valuable test that you can put your patient to when that patient is under a local anesthesia. You can take hold of the kidney, the gallbladder or the stomach and ask the patient, "Is that what causes your pain?" "Is that the place that you have been having your symptoms?" And you will not find very much difficulty in locating the source of your symptoms. That is what Farr refers to as the physiological test. Another great advantage in exploring the abdomen is what is referred to as the silent abdomen. When you enter the abdomen under local or regional anesthesia and your anesthetic is as perfect as it should be, the intestines fall away. There is no protrusion of intestines through the wound. That abdomen is flat and silent. If you have a patient that is of such a nervous temperament that you can't secure a perfectly relaxed abdomen before entering it, put your patient under a general anesthetic. The failure of surgeons to succeed in abdominal sections under local anesthesia is not due to the faulty method. It is due to faulty technic. When I have a failure under local anesthesia, I know exactly who is to blame. I don't blame Dr. Farr or Dr. Braun or Dr. Harris for giving me a false hunch. I know that it is my own inefficiency and I know that the same thing applies in all other cases. If the operation under local anesthesia is not a success, it is the surgeon's fault nine times out of ten. The great margin of safety for the patient is another factor that should cause every surgeon who attains to any surgical skill to employ local anesthesia wherever possible as the method of choice.

DR. H. T. BAILEY (Phoenix): I think Dr. Carson mentioned that this climate is better for chloroform than a damp climate. Humidity does interfere with anesthesia and more so with chloroform than ether. I have noticed on rainy days one has to watch his patient more closely than on dry days.

A few years ago I was helping Dr. McLoone do a mastoid on a rainy morning. We had one of our best anesthetists giving ether. We had considerable trouble with the anesthetic. I have noticed many times since that other surgeons and anesthetists had trouble on rainy mornings.

It has been brought out that the patient should have the confidence of the anesthetist. The surgeon can help to strengthen this confidence a great deal if he will say to the patient, "There is Dr. Carson, Dr. Whitmore or Dr. Jones. He is a splendid anesthetist." or say, "He is an expert in his line." This short speech does the surgeon no harm and it does the anesthetist a great deal of good. It also helps the surgeon because the patient is glad to know that his surgeon selects experts to help him.

Ethyl chlorid as a general anesthetic has not been mentioned. Some of the throat men in the East use it as a general anesthetic almost exclusively in tonsillectomies. I mentioned this to my anesthetist here as being so quick and that it eliminated the exciting stage that we get with ether. He said, "You do not have to wait on me long, so why try something new when there is an element of danger in it?" I mention this to strengthen Dr. Whitmore's point when he said, "We should use the method we are accustomed to."

DR. WHITMORE (closing): Just a word upon two or three points. Possibly I should have changed my subject, for I made no attempt to consider anesthetics outside of chloroform and ether. As you notice, I did not have time to complete that.

I agree heartily with Dr. Carson in his statement that many patients fear the anesthetic more than the operation. All possible efforts should be made to allay undue fears. The patient should have complete confidence in the anesthetist. Many of the patients I have never seen before. In such cases I aim to inspire such confidence by my demeanor and actions, rather than by telling them what a wonder I am. Frequently, my good friends, the surgeons of Tucson, solve the problem by telling the patients, "Dr. Whitmore is the best anesthetist in Arizona—outside of Phoenix." (Laughter.)

As Dr. Carson states, the selection of the anesthetic is important; it should be one with which the anesthetist is perfectly familiar. Chloroform, in the hands of a chloroform expert, will give less trouble than ether administered by a novice. After using practically nothing but chloroform for twenty years, when I came to administer ether I was certainly slow. Giving it at about the same rate that I had given chloroform, the result was a ridiculously long time in inducing anesthesia with ether. Of course, I soon learned the proper rate of ether administration.

Concerning the mortality rate from anesthetics, my administration of only 3,500 cases is not enough to mean anything in percentages. I have had two patients die upon the table; each had taken chloroform. One was over 30 years ago, a case of peritinitis that ought never to have been put on the table, for that matter. Dr. Goodfellow was the operator, although my recollection is that he did not get far with the operation.

The second occurred some four or five years ago, since ether has become the anesthetic in general use with us. Dr. Clyne asked me to give a few drops of chloroform to a patient. I think it was a vaginal abscess he wished to open. Apparently she took the anesthetic very nicely, was soon under it. The operation was over in a moment or two, when she suddenly ceased breathing and all efforts at resuscitation were unavailing. This would be unquestionably one fatality in 3,500 that could be legitimately ascribed to the anesthetic.

I believe that is all.

MYOCARDIAL DEGENERATION*

F. T. FAHLEN, M. D., Phoenix, Arizona.

In direct proportion to our knowledge of the condition of the myocardium in any given case is the accuracy of our prognosis and therapy. Be the case one of valvular disease or one of disturbance of rhythm, the integrity of the cardiac wall, its innervation and tone is fundamentally the thing upon which the welfare of our patient depends. With few exceptions, signs of cardiac pathology, such as murmurs, irregularities of rhythm per se, no longer form the basis of prognosis, this depending principally on the status of the heart wall.

While it is true that sudden deaths of a cardiac type do occur without gross or even any demonstrable pathology, still these remain few and infrequent instances.

While instruments of precision have in recent years added much to our knowledge of cardiac physiology and pathological activity they have failed to equal in importance or displace clinical interpretation of cardiac cases.

There is a strange inconsistency between the knowledge long since offered us by the pathologist and our lack of acceptance of such teachings at the bedside. It is very near the truth, also demonstrated by pathologists, to say that the heart muscle rarely escapes damage, slight or serious, transient or permanent, in most of the infectious diseases. More obvious are those diseases which notoriously show a specific damaging selectivity toward the heart muscle, such as influenza, streptococcic infections, rheumatic fever, pneumonia, diphtheria and syphilis.

A great source of error is to disregard the condition of the heart wall if there is no murmur present or, conversely, frequently to give a bad prognosis based on the existence of a murmur alone. It seems academic to bring this forward again and is, perhaps, a tiresome bromide, but such cases are persistently brought to the attention of anyone especially interested in heart work.

In a general way, the integrity of the action of the heart is dependent upon:

A. Nutritive quantity supply.
   1. As a whole.
   2. Throughout its arterial supply tree.

B. Nutritive quality supply.
   1. Free from toxic material.
   2. Free from abnormal products of metabolism.
   3. Free from bacteria.

C. Normal cardio-dynamics.
   1. Vasomotor system normal in (a) tone; (b) organic structure.

The above relative to the general circulation and the pulmonary circulation.

D. Normal cardiac innervation.

E. Normal cardiac conduction.

F. Freedom from abnormal extraneous anatomical influences, such as pericardial adhesions; lung or mediastinal scarring neoplasms; pressure, etc.

The myocardium is supplied essentially by the coronary arteries which are terminal or end arteries. In disease these frequently show patches of endarteritis or diffuse sclerotic changes in the main artery or its larger branches which, by narrowing the lumen, affects to a greater or lesser degree the nutrient supply to a portion of the heart wall, or in case of terminal branch may lead to a total ischemia with necrosis. That this does not occur with greater frequency is due to the fact that further nutrient vessels are given off directly to the myocardium from the ventricles and auricles.

Septic infarction is probably more common than is supposed or clinically found and may produce no profound

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symptoms in many cases.

Diffuse fibrous changes may be, and usually are, associated with hypertrophy .

Complete sudden blocking of the coronary artery or one of its larger branches is usually fatal and "one of the common causes of sudden death." This may occur as embolism in a previously sound artery or as a thrombosis in one previously affected by an obliterating arteritis.

Trophic disturbances with atrophy are apparent in any great degree of cachexia and not many years ago tuberculosis was thought to be due to a small heart so frequently was this found to be present in phthisis.

Arteriosclerosis should not be thought of as a disease involving the entire vascular tree, as more frequently it is a localized process involving an organ or branches of vessels supplying an organ. In this way there may exist a diffuse nutritional disturbance to the heart wall or there may be a localized ischemia with resultant changes and weakening of a part of the wall. The heart muscle may suffer from the same prolonged toxemia or increased effort which originally produces the arteriosclerosis. Secondarily, it may suffer from the increased effort that is necessary to overcome the head-on resistance, caused by arteriosclerosis. Third, it may suffer by the lessened nutrition due to the general or localized narrowing of the supplying arteries. In the latter there may exist a marked change without any change in the blood pressure.

The changes that are produced by the acute infections are quite varied; cloudy swelling, hyaline degeneration, fatty degeneration, mucoid interstitial changes; at times even necrotic changes are found. Such affections may lead to more or less permanent changes or frequently undergo entire resolution. More often than is supposed, however, these changes go on to fibroid changes which permanently impair the efficiency of the heart action and become the type of case to which this paper has especial reference.

Syphilis notoriously affects the myocardium. There are found various types of changes. One in which there are groups of large numbers of spirochetae about the arterioles and in the interstitial tissues without any definite change in structure. In another there is a peculiar mucoid or hyaline change in the interstitial coat which may be extreme and lead to actual necrosis. Fragmentation and segmentation are quite frequent. Fatty changes also are found. As a result of these various degrees of sclerosis take place with clinical manifestations more or less evident.

Gummata are rare, but have been recorded in the bundle of His as causing heart block with the Stokes-Adams syndrome. These cases if recognized can be cured. The endarteritis due to syphilis of the coronary arteries is quite common and is usually associated with the above mentioned pathology. It has been held by some observers that the spirochetae of syphilis are more frequently found in the heart wall than in the liver.

There is a type of interstitial myocarditis (acute) found in pyemic disease, diphtheria, typhoid, acute rheumatic fever, gonorrhoea and (subacutely) in syphilis as mentioned in which the connective tissue becomes swollen, gelatinous, or mucoid, and infiltrated with leucocytes and small round cells, with the muscle cells showing cloudy swelling hyaline fatty or granular degeneration. There is also a condition peculiar to the heart muscle which shows as a segmentation at the line of cellular junction or cement or fragmentation in which the fibre separates actually across at the level of the nucleus. The parenchymatous changes referred to may occur in fevers or toxemias of various sorts and usually involve the entire heart muscle. This may be extreme and is granular and not fatty in type. Fatty degeneration and fatty infiltration are too well known to need comment. Hyaline and amyloid changes are not rarely

seen in chronic pyemic states or prolonged suppuration, and occur far more frequently than reported in chronic ulcerative tuberculosis.

The clinical syphilitic heart is one of great interest, owing to the varying picture it may present as well as the response to treatment, that these cases show. This will be taken up later.

Prolonged splanchnic hyperemia producing arteriosclerosis of this system, with resulting hypertension, is an interesting and important causative factor in myocarditis. This occurs most frequently at about fifty years of age in plethoric types of men who have led a strenuous mental and sedentary life associated with overeating and the "a.c." cocktail. These represent a large proportion of our golfers, and to their credit be it said that they play as intensively as they worked in their younger days.

The vasomotor system can hold vastly more blood than it does. The reason of this is that the vascular tree is in a constant state of contractility due to vascular tone, which may vary within limits. For instance, in acute shock states or in the common garden variety of faintness there occurs a widening out of the splanchnic system with a consequent cerebral anemia. It is to be remembered that experimentally a dog may be practically bled to death into his splanchnic vessels. Therefore, the myocardium can suffer indirectly by such changes as are more or less persistent in the vasomotor tone. In this way the right heart suffers materially after long periods of fighting increased pressure in the pulmonary arterial system in emphysema, fibroid changes, etc., which by obliterating large areas of capillaries causes a great increase in the resistance and overwork of this side of the heart.

Innervation and conduction changes are frequently associated with concomitant wall pathology. However, in flu, diphtheria and other acute infectious diseases there occurs a neuritis involving the vagus chiefly, which affects not only cardiac function, but also definitely its nutrition.

Gonorrheal and other types of ulcerative endocarditis, syphilitic gummata or fibrosis, sclerosis of other types and fatty degeneration have caused impairment or total destruction of the function of the A-V bundle, with resulting various degrees of heart block. While fatal in many cases, it is surprising with such profound changes in the cardiac action as results in complete heart block that more severe disorganization of circulation does not take place.

Close attention to the history in cases of suspected heart trouble cannot be too insistently brought forward. It is possibly more correct to urge that all cases consulting us should be closely questioned, with cardiac pathology in view, until the latter be proven absent, especially in all cases in the fourth decade. This applies to gonorrhea, syphilis, prolonged sickness, typhoid, flu, tonsillar infection, chorea, arthritis, pneumonia, family arteriosclerosis, etc.

Subjective symptoms may be present before objective signs of heart disease can be found. The value to be placed on sensations should be carefully weighed, the neurotic tendency of cardiopaths to be always borne in mind. For instance, a common error is the patient's insistence upon the gastro-enteric phase of the trouble, an error which is too frequently shared by the medical attendant. The recent death of a prominent man from "ptomaine poisoning", so called, could without difficulty be diagnosed at long distance as one of myocardial degeneration as an illustration of an oft repeated similar circumstance, which undoubtedly has its basis in the fact that nausea, epigastric pain, belching and prostration, with pulse disturbances, are concomitant symptoms of acute cardiac dilatation.

Of the greatest importance is close and well chosen questioning regarding cardiac reserve; whether exertion, that should be regarded as moderate to normal, brings on evidence of distress, rapid or labored breath-

ing, feeling of exhaustion, cough, substernal pain or pressure, faintness, pallor, nausea, vomiting. It is to be remembered, on the other hand, that these can be due to other things, such as anemia, pleural effusions, fibroid phthisis, anthracosis, etc. The more obvious evidence of heart weakness, such as dependent edema, can be overlooked at times unless the patient is made to understand what is meant. There is not infrequently a tendency on the part of patients to do their own interpreting and they will assign their own interpretation to the value of just such matters because the well founded fear of so called dropsy will make them very reluctant to have such a symptom fastened upon them.

Pain may or may not be present, and may vary within wide limits in type, severity and location. The bracelet type paresthesia of the left or right forearm, tightness, pressure or actual substernal pain or a sense of tugging at the base of the neck. I have found in several cases a salty taste spoken of at each attack. Palpitation is not so frequent in the myocardial types, but irregularities are often noticed, especially the ventricular extrasystoles.

Dyspnea is spontaneous or brought on by exertion, eating or exposure to a chilling air. Orthopnea is not uncommon as an early symptom, but is found usually with definite decompensation. Cough is often present and may be dry and irritating, or be occasionally accompanied by brownish or even in sudden dilatation by bright bloody and frothy sputum. In endocardial cases pulmonary infarction should not be forgotten in connection with bloody sputum. Huskiness of the voice is present in those cases where the left auricle is dilated and presses on the recurrent laryngeal nerve, this not necessarily being associated with aneurism.

Insomnia, mental torpor, psychasthenia, neurasthenia, hypochondriasis, even the depressive psychoses are found. Also evidences of cerebral edema or anemia, localized or general, are found, any of these very often clearing with restoration of the cardiac compensation. It has been my experience that many of the above mentioned are due more often, however, to digitalis poisoning than to the heart deficiency.

Pallor, cyanosis, dependent edema, purpura or discoloration due to old passive hyperemia, are usually present.

As previously alluded to, symptoms relating to the alimentary tract are rarely absent and most frequently misinterpreted. Anorexia, dyspepsia usually due to a hypochlorhydria flatulence, constipation or diarrhea, abdominal pain, hemorrhoids, hematemesis, can all be evidence of venous stasis in the esophageal and portal veins. Scanty and dark urine is nearly always present due to passive congestion in the renal veins.

In acute infectious disease death may result without demonstrable cardiac changes and is one result of damage, by the severity of the toxemia, to contractility and conductivity, a condition at times quite undiscoverable clinically. However, for years the gravity of an irregularity occurring in the course of pneumonia in a previously sound heart has been well known.

The recognition of chronic myocarditis due to isolated cardio-sclerotic changes may be difficult unless the history is carefully considered, or may be suspected by finding some degree of cardiac enlargement by fluoroscope or film.

It may be far easier to diagnose a myocardial degeneration with a known generalized existing arteriosclerosis and clinical etiological evidence with which it may be correlated, such as evidence of an affected arterial system plus pulse rates or observing cardiac sounds of a sharp flapping quality to the first sound of the apex, together with electrocardiographic or manometric evidence of myocardial disease.

Examination of the eye grounds should not be neglected, as this may be the only tangible evidence of arteriosclerotic change. Loud concomi-

tant harsh systolic murmurs may be present and are often evidence of advanced calcareous valve change, mitral or aortic, or due to plagues in one aorta alone. Incidentally, evidence of aortitis is strong presumptive evidence of concomitant cardiosclerosis.

On the other hand, as stated, myocarditis or aortitis may be present with entirely normal sounds at the base and apex. Faint systolic murmurs may mean nothing, as impurities of the first sound are found in normal hearts.

Importance of localized pericardial adhesions has been advanced as very suggestive of localized cardiac scarring due very likely to myocardial infants from obliterative coronary arteritis.

Ventricular extrasystole is the most frequently found and usually the first arrhythmia to occur. Auricular fibrillation is also often present. These may be associated or coincident with conductive disturbances and varying degrees of block. I have seen on several occasions a complete heart block as the first evidence of myocarditis.

Examination of the lungs very often shows subcrepitant rales at the base and at times fluid in pleural cavities on the right. Emphysema fibroid changes of the lungs should direct attention toward right heart changes.

The abdomen frequently shows a tender liver, which may be felt extending below one costal arch. Hemorrhoids are very frequently a real evidence of portal stasis.

A functional test based upon a series of observations I made in 1912 has proven of value to me in judging the integrity of the heart muscle. This test is based upon an effort to determine the cardiac reserve power.

The question of treatment is a big one and cannot be taken up in a paper of this kind.

DISCUSSION

DR. AVERY NEWTON (Los Angeles): Mr. President and Gentlemen: I listened with a great deal of interest to the very carefully prepared paper by Dr. Fahlen and he asked me to verify something and I will do that before I forget. I find that patients do very often claim a salty taste or more often a sweet or coppery taste. The interpretations of heart conditions are changing materially; formerly, if a man was found with a murmur, he was doomed, while a man who had myocardial irregularity scarcely more than audible and was suffering fatigue, indigestion and all the pains and discomforts that go with an impaired circulation was passed as quite all right. Unfortunately, the only things that we looked for were murmurs and marked enlargement, that is all; but within the last few years we all see a great number of men who have murmurs from an old endocarditis some time during their life. They have a perfectly established compensation. They can do just as much work as the most robust and have no ill effect. I call to mind a baker patient of mine who didn't know he had a heart until he went to take out some life insurance and he had myocardial murmur which you didn't need a stethoscope or anything else to hear; but that man is handling great trays of bread every night in a room hot from oven baking and he has no discomfort and no distress. He could do twice as much work as I could—really phenomenally hard work—does not tire from it, and yet he was considered as ready to die and the doctor, I believe, told him he could not live more than a month. It scared the doctor more than it did the patient, who came in to see me about it, and I found that he had a fairly normal blood pressure and had established a very wonderful compensation, and I believe he will go along and live just as well as though he did not have that heart murmur. The thing to look for is impaired function of your heart muscle. That is the most important thing in treating your cardiac diseases. Don't pay too much attention to murmurs. Murmurs always mean a percentage of impairment which the heart muscle has probably been compensated to take care of. A man who has an arteriosclerotic heart, who is constantly absorbing poison from his intestinal tract, is in a very much more serious condition than a man who has a murmur and is quite well of the condition which caused the endocarditis and murmur and is going along very well.

DR. W. W. WILKINSON (Phoenix): One of my surprises in my early practice in Colorado was to find a teamster with a loud mitral murmur handling a large amount of coal and lumber daily. I supposed in my early days of practice that a man living at 9,000 feet elevation with a severe heart lesion would not be handling coal or doing heavy work. This man was getting away with it in fine shape.

DR. FAHLEN (closing): I don't think I have much to add, as Dr. Newton and I absolutely agree, as probably we all do, that accidental murmurs don't mean anything. If you can determine the reserve of heart force you have a much more valuable asset in estimat-

ing the prognosis than you have by interpreting what a murmur means. I tried to work that out in 1922 in a series of cases and got very near the truth; unfortunately, I was not able to carry on my work. I grouped my cases A, B, C and D; "A" cases being normal, "B" cases valvular leaks, never decompensated; "C" cases compensating, but with history of a decompensation; "D", the very poorly compensated cases. I put them through a varying series of tests, the "A" cases running up the stairs. The total decompensation, just mild exercise in bed. I then took pressure observations, first, after resting for half an hour just before and immediately after exercise, then at five minute intervals, and found that the "A" cases would respond with slight increase of pressure, and at the end of twenty minute intervals the pressure was not only equal, but still above what it was in the beginning. In the "B" cases, there was more of a reaction, the pressure going up higher right after exercise on the average than the "A" cases. The response after twenty minutes was still equal to what it was just before exercise, but not below the line. The "C" cases, the cases having been decompensated and then compensated, the reaction at the five minute period was not quite what it was in the "B" cases, and their reserve showed the pressure at the end of twenty minutes below what it was when they began. The "C" cases totally decompensated cases never showed any response. The pressure after exercise was lower than it was at the beginnning and went right straight down until after the twenty minute interval. It was much lower than it was in the beginning. I believe there is something to this test and I hope to be able to work it out later on.

PUBLIC HEALTH

Z. CAUSEY, M. D., Douglas, Arizona.

The term, Public Health, includes the entire field of organized social activities concerned with the prevention of disease and of the promotion of health. It embraces not only the amelioration of unfavorable environmental conditions and the control of outbreaks of communicable disease, but also the systematic education of the public in the principles of personal hygiene and the upbuilding of machinery for the detection of incipient diseases of all kinds and for the checking of their progress by hygienic, medical or surgical means.

From the beginning of the modern public health movement, dating back some fifty years, there has been wonderful advancement made in the science of the prevention of disease, and many of the most widespread and deadly diseases have been almost relegated to the realm of unpleasant memories, and yet the work has just begun. I am fully persuaded that the science of preventive medicine holds in store for humanity greater benefactions than any other one thing that modern science has evolved. If the knowledge already in the hands of the medical profession regarding disease prevention were properly applied we could look forward to a not far distant day to an almost diseaseless world. It is encouraging to note that mankind is awakening to the great possibilities of disease prevention and it would certainly appear from the interest now being manifested by men of ability and influence both in and out of the medical profession, that we are entering upon the greatest period of constructive hygiene that the world has ever known.

The late world war, with all its horrors and sacrifices, quickened the medical profession to a more profound desire to serve humanity, created new ideals in the social and civil life of the nations, and gave an impetus to preventive medicine that has already placed it among the leading branches of medical science.

Reviewing some of the many accomplishments looking toward disease prevention during the past fifty years we note that in 1880 Pasteur announced his discovery of preventive vaccination; Lavorand discovered the malarial plasmodium in 1881 and in 1884 he found with the assistance of

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others that the mosquito was its intermediary host; in 1882 Koch introduced the tubercle bacilli to the world; in 1889 Behring proclaimed the prophylactic and curative virtues of diphtheria antitoxin; Widal gave the fact of the agglutination test for typhoid bacilli in 1896; in 1898 Loose revealed the facts regarding hook worm disease and the mode of its transmission; in the same year the yellow fever commission headed by Reed established the mode of transmission of yellow fever, while in 1905 the etiologic agent of syphilis was declared and two years later the serodiagnosis of this disease was established. Later discoveries of the mode of transmission of bubonic plague and typhus fever are significant. All these facts, together with the proven methods evolved for the control of these and many other diseases, have established preventive medicine beyond question and are encouraging men to go forward in the prosecution of further efforts looking toward the ultimate goal of eradicating disease and bodily infirmities, thus making of this old world a place where man can live and enjoy life without the constant dread that some disease will overtake and destroy him at every turn.

Keeping step with the above accomplishments, medicine has advanced its idea of contagion to the fundamental basis of prevention. Hospitals and dispensaries are no longer mere organizations for ministering relief through curative methods, but are assuming the aspects of preventoria and health centers.

People everywhere are being urged by educational and legislative means to subject themselves to the proven methods of immunization against smallpox, typhoid fever, diphtheria, etc. In the schools the exclusion for the most outstanding contagious diseases has been supplanted by regular medical examination and physical inspection, with a view of improving the physical, together with the mental status of the child. The defective and delinquent are recognized as worthy of study and investigation as part and parcel of the economic and public health problems. The art of obstetrics has advanced to a more thorough understanding of the necessity of prenatal care and pediatrics now takes cognizance of the many defects of the child which prevent its normal growth and development, and to these ends a vast assortment of institutions have been developed, many of them at state expense, for the protection of maternity, infancy and childhood. Casual and occasional dentistry has been supplanted by the more valuable field of oral hygiene and prophylactic dentistry; hope has been rekindled in the victim of tuberculosis and the possibility of preventing the development of latent tuberculous infection in the child and adolescent has been brought about through the intensive educational campaigns conducted in recent years by the anti-tuberculosis leagues and other societies and organizations. The possibility of controlling the ravages of venereal diseases was demonstrated beyond question through the campaigns conducted by the various states in co-operation with the U. S. P. H. S. during and immediately following the war.

The tendencies of preventive medicine are further emphasized by the establishment of various institutions and commissions during the recent past, the most outstanding of which are the founding of the Lister Institute of Preventive Medicine; the establishment of the Rockefeller Institute; the organization of the Imperial Cancer Research Fund; the enactment by Congress of the Sheppard-Towner bill; and even more recently many of our leading medical schools adding to their curriculi intensive courses in the science of public health in order to meet the demand for investigation and a trained personnel to carry on this great work.

We might continue ad infinitum to cite the various efforts being put forth and the striking results accomplished in the field of public health; suffice here to add that the worth of human life in its maximum potential

efficiency has been realized and that no sect, bloc or creed can prevent the wheels of preventive medicine from going forward. Indeed, the trend in the study and application of preventive measures is so firmly grounded that "he who runs may read" and he who fails to lend his sympathies at least to the great possibilities for good that preventive medicine holds in store for the human race will soon awaken to the realization that he has failed to do his bit in fostering the greatest benefaction that any art or science has ever discovered or championed for the benefit of humanity.

When statistics tell us that 33 1/3 percent of the men who appeared before the examining boards during the late war were found to have physical defects that rendered them physically unfit to enter active military service and that 50 percent of the twenty-five million school children in the United States today have defects that will to a greater or less extent impair their progress and ultimate usefulness, it is time for us to awaken to the imperative need for concerted action looking toward constructive organization and legislation for the ultimate solution of the many and far reaching problems of public health, upon the proper solution of which so much depends.

The importance of the question of public health has seemingly failed to impress the rank and file of the medical profession as profoundly as the possibilities enthroned therein would seem to justify. The reason is, I think, that many of us feel that to encourage the application of preventive measures we will be violating the fundamental principle of self-preservation; we often hear the statement that doctors in advocating the principles of disease prevention are "killing the goose that lays the golden egg"; I am persuaded that such is not the case at all. Disease prevention will never develop to that degree where it will seriously impair the activities of the physician of noble aspirations and humane motives. There is no question but that disease, suffering and death will be curtailed in a marked degree which would seem offhand to indicate a restricted demand for the services of the physician, but on the other hand medical education has made such great advances during the past twenty-five years that there has been a marked decrease in the number of physicians in the United States. During the past fifteen years the matriculants in our medical colleges have been reduced almost by half, many on account of the increased entrance requirements, others on account of the marked advance in the cost of medical training. Indeed, the services of the physician in the treatment of disease will no doubt in time be restricted, but owing to the reduced number of doctors, his clientele will be increased and a higher type of service will be demanded and the remuneration for services rendered will be proportionately increased, so as a result of higher medical standards and the emphasis placed upon preventive measures, the profession will receive a great uplift and will inevitably grow in public esteem and respect.

Hence the medical profession as a whole should stand as solid as the rock of Gibraltar for the maintenance and further enlargement of our present health organizations and should ever be on the alert for such organization and legislation as will increase our usefulness to the public whom we serve, and add further lustre to the splendid accomplishments of our noble profession.

A discussion of the questions of public health would be incomplete indeed without reference to the great possibilities that preventive measures hold for aiding the child to grow into a strong, virile and useful citizen. As stated above, one-third of the men appearing before the draft boards during the late war were found to have physical defects such as to preclude them from the active military service of their country in its emergency. These men who were found to be physically unfit for military

service are also equally unfit to successfully meet and cope with the arduous duties of present day civil life. It is indeed a serious handicap to a nation for a third of its people at the most productive period of life to be physically unfit to meet the exigencies involved in our modern civilization. Perhaps the most striking thing connected with the above findings of the draft boards was that in a very large proportion of those rejected because of physical unfitness, the defects were directly traceable to child life and could have been easily corrected at that time.

When we are in possession of the lamentable fact that 50 percent of the school children in this country have physical defects, some slight, others grave, all of which, however, will handicap the child in its future development and usefulness, a large percent of which are easily remediable, it will be a serious indictment against the state and nation if we fail to protect the youth entrusted to our care and to aid them in developing into strong, virile and useful men and women, in so far as the light of our present knowledge warrants.

The child is the ward of the state until he has attained to the mental and physical ability to become an asset. It is a wise policy, then, in the economic development of any country, not to neglect so important a thing as the medical examination of the child, beginning with the preschool age and continuing on through the school life, and to provide the means for correcting, where possible, all existing physical defects, at public expense if need be, thereby giving the children of our day and generation the God given right to develop into men and women who, should the emergency again arise, could enter their country's service and who can by being given the opportunity to develop into well rounded physically and mentally fit adults, do their bit in carrying this state and nation forward to the ultimate glory that our natural resources, climate and strategic location would seem to justify.

The medical profession is in possession of the facts regarding these conditions and have the ability to carry out the necessary protection and corrective measures. Therefore, we will be remiss in our obvious duty to humanity if we fail to put forth every effort possible to bring those in authority to see the great and far reaching importance of these matters.

I realize that there are many difficult problems to overcome before we reach the goal desired, yea demanded, if we expect to hold our lead among the peoples and nations of the world. Yet through the concerted efforts of so great and intelligent a group as compose the medical profession results will overwhelm us even in the short time left to many of us present here today.

Roger Babson gives the following striking illustration of what concentrated effort will accomplish. He says: "In one of the laboratories in Washington they have a great sun glass that measures three feet across. This great glass gathers the rays of the sun that strikes its flat surface and focuses them on a single point in a space a few feet below. That single spot is hotter than a blow torch. It will melt through a steel plate as easily as a red hot needle will burn through paper. This terrific heat is just three feet of ordinary sunshine concentrated on a single point. Scattered these rays are hardly felt—perhaps just pleasantly warm—concentrated they melt adamant.

The same principle applies to human endeavor; scattered, a man's or a group of men's energies do not amount to much; once they are focused on a task at hand seemingly unsurmountable difficulties melt like snow on a hot stove."

Is Arizona measuring up to her full stature in the all important matter of public health? When we review the facts involved we are compelled to answer in the negative. With taxable resources aggregating approximately eight hundred million dollars, we are spending only about $25,000 annually for the maintenance of our state

health department and this amount is allotted in a way that it is doubtful if we are receiving the maximum benefits therefrom.

I maintain that a strong, virile, contented people is the greatest asset of any state or nation and that these physical and mental qualities cannot be attained to or preserved unless the fundamental principles of public health are religiously applied. In order to apply these principles it is necessary to have a well organized State Health Department with a well trained full time man in charge.

We have a Live Stock Commission with a full time man in charge and a retinue of full time assistants to foster and protect the live stock industry; a Dairy Commission headed by the State Dairy Commissioner, a full time man; an Apiarian Commission to protect the bee industry; a State Game Warden; agents galore to teach us how to develop and protect our fruit and agricultural interests and various other boards and commissions, all well equipped with money and personnel to stand guard over our splendid resources, which is all well and good. Yet our State Health Department, which from the standpoint of constructive service is by far the most important department of state, has only a part time man in charge, with a salary so small that he is compelled to devote a good portion of his time and thought to the practice of medicine in order to support himself and family. Our State Health Code should be so amended that a full time man can be placed at the head of our State Health Department and he be furnished with sufficient clerical help and field workers to bring this department of state up to the standard required to protect the people, in so far as our present knowledge will justify, from the inroads of preventable diseases.

Our Vital Statistics Law should be amended so as to conform, as near as local conditions will justify, to the model law recommended by the United States Bureau of Census and under which practically two thirds of the states are now operating. Every effort should be made to bring this important department of state up to the standard required for admission into the registration area.

Our law governing the appointment and salary of county health officers should be amended to the extent at least that any county that may so desire can appoint a full time health officer and the Board of Supervisors be empowered to pay that official a salary commensurate with the services rendered. A number of counties in the state should have full time health officers; other counties not so fortunate as regards resources and population should be permitted to employ jointly, where feasible, full time men to protect that most vital asset, the health and lives of the people.

We should have a state law requiring the medical examination annually of all school children and provisions made for protecting the children from preventable diseases and the correcting of physical defects to the limit of our present knowledge. It is a reflection on our sincerity of purpose when small pox is allowed to sweep over the state and take a toll of 132 lives, as was the case in 1923. This experience certainly should be sufficient argument for the enactment of a compulsory vaccination law by our next legislature. Every school child should not only be successfully vaccinated against small pox but should also be given the Schick test and where positive reactions are recorded should be immunized against diphtheria.

Thus we might proceed at length. However, the above are some of the most important matters that should claim our attention and toward which we should all strive, to the end that the people may have the protection that they are entitled to whether they are conscious of it or not.

The medical profession of Arizona can not wash their hands of these matters and measure up to the standard of excellency that our high call-

ing and humanity demand of us. Nature has endowed Arizona with a wonderful climate and splendid natural resources; a great and progressive people make up her populace, yet all these do not insure the preservation of the health and well being of her inhabitants.

We sing our national airs with patriotic devotion; we applaud the maneuvers of our troops and battleships; we pay our taxes, vote regularly and conscientiously at every election; we maintain churches, lodges and civic organizations of various kinds and thus persuade ourselves that we have done enough. While men and women have contented themselves with doing these things, preventable diseases have spread their black wings over all the land and are reaping a harvest of economic waste, physical suffering, mental anguish, and death, of which only eternity can reveal the extent.

DISCUSSION

DR. R. B. DURFEE (Bisbee): I desire to congratualte Dr. Causey on his paper and I wish to emphasize particularly the importance of health work among the children, as it is undoubtedly the foundation of modern public health work. The importance of health work, I believe, is not fully realized by the general public and also by the medical profession. I believe that this Association should support the health work in this state better than it has done in the past. Arizona is far behind other states in this country in regard to its health work and I believe that we, as medical men of this state, should get behind it and push it forward as much as possible. I notice in the back of our program that one of the purposes of this Association is to enlighten and direct public opinion in regard to the problems of public health and hygeine, so that it will become more useful to the public in the prevention and management of disease and prolong and aid in the comfort of life. I believe that we should live up to that and stand back of it with emphasis. I believe that now is the time that we should do something for the sake of public health in Arizona. I believe that one of the most progressive things that we could do would be to get new state health laws. The state health law we have been working under for the past twelve or thirteen or fourteen years is old. It is out of date and, under it, we cannot work efficiently. I would like to see this association go on record as supporting a new state health law.

DR. W. W. HORST (Globe): I will just touch on one problem, regarding which we have received a good deal of literature in the past; that is the venereal problem. Our state law says that we should report our venereal cases and there are not very many that do. I remember that a year or so I was one of the few who reported venereal cases. This subject has come up for discussion in the Gila County Medical Society on more than one occasion, and the doctors there are in a quandary as to just what to do. We feel that we are in between two fires. If we do not report our cases, we are not doing what we should. If we do report our cases, we are violating a privileged communication from our patient and the question has been discussed there as to just what the attitude should be and I would like to hear Dr. Causey's remarks on that as to what the legal status of that affair is. Our patients could sue us for giving up their private confidences. There is no doubt that a five or ten year strict quarantine on the venereal problem could be easily maintained if the public would support it and I do not believe that any quarantine would give greater relief to the nation as a whole and the contents of our insane asylums than a more rigid quarantine of that particular disease.

DR. A. D. WILSON (Prescott): Dr. Causey's very excellent paper, I am sure, was enjoyed by us all and occupied its relative position in the world's discussion, as we generally see it, secondary to the economic problems of cattle, live stock and one thing and another. I think that there is one thing he did overlook on the question of public health that will interest the general public on the economic side of sickness and disease; I believe that if there is one point that will ever attract the attention of the general public in regard to the prevention of disease it will be the economic side. Discuss the hoof and mouth disease in the terms of hundreds of millions of dollars and it creates a furor throughout our particular part of the country. If the public health men could prepare and present to the general public, as well as to the medical profession, the costs to the public of sickness and preventable diseases, it would be so much more astounding than the cost of hoof and mouth disease. We are all too well acquainted with what we would like to do in regard to prevention of disease, but nobody is particularly interested in it until it strikes home. We don't want to see any of our own particular friends and members of our family sick but, outside of that, the general public is not very much interested as yet, I take it, but, when it comes down to the economic side, the loss of dollars and cents and the destruction of business, you can create an interest that is city-wide and statewide and, if necessary, world-wide. Economic loss from preventable disease reaches into sums that I think, if they were known, would stagger the human mind and, I believe, that any great success that is ever reached in the prevention of disease, will come through pub-

lic opinion and through stressing the economic side of the problem of disease.

DR. CAUSEY (closing): The question of reporting venereal diseases is a mooted one. While I was director of the venereal control work in this state, I made every reasonable effort to bring the physicians of the state to see and do their duty along this certain line but with very unsatisfactory results; hence, after two years of such effort seemingly without avail, I decided that life was too short and energy too dear to waste on something that had not the remotest chance of success; so, I very graciously tendered my resignation and sought labor in fields where my efforts would be more appreciated and effective. The state regulation for the control of venereal diseases, I am afraid, is in about the same boat with the Federal Prohibition Act, neither is being very successfully enforced. I think our present state Health Officer is making a reasonable effort along this line; at least, I get reports from him with letters, literature, etc., which so indicate, all of which I appreciate.

Personally, I fail to see why any physician should object to reporting his venereal disease cases in the manner provided by our state regulation. We are only required to report by number, the name of patient remaining a secret unless quarantine is broken, and so far as I am informed and I think I am reasonably well informed on this score, there has never been any one brought before the courts of this state for having broken quarantine; therefore, there has not been a name made public of any reported case. With these facts before us I fail to see any plausible reason why the physicians of the state should object to reporting their venereal disease cases.

I feel that the doctors are and have been remiss in the performance of their obvious duty in this important public health question. I don't think there is any public health problem that is so far reaching in its effects on the race as is the venereal disease problem. If it ended with the man or woman who happens to contract a venereal disease it would not be so bad; unfortunately however, it permeates the family life, fills our eleemosynary institutions with the indigent, insane, blind and crippled—in fact the greater proportion of those who are being cared for in our state institutions are there on account of venereal diseases.

Now as to the economic side of this question: I am sure that there is no disease that involves so great an economic burden as does the venereal diseases. Control venereal diseases and we will increase our man power to a very marked degree. One-half of the outlay for the maintenance of insane asylums, reform schools, hospitals, etc., would be eliminated and humanity would receive an uplift such as nothing else could give. With these facts before us it would certainly appear that the medical profession would not leave a stone unturned in order to bring about such great economic and humanitarian results.

As a matter of course, we, who are engaged in public health work, give more time and thought to these problems than do the other members of the profession. I have been in public health work to a greater or less extent for the past ten years and the more I study the various public health problems and their far reaching effects on the race, the more interested I become in them. My appeal to this Association is that we give more time and effort in bringing these important questions to the attention of those with whom we labor.

We are hearing a great deal just now about the foot and mouth disease and the havoc that will be wrought should it get a foothold in this state, all of which I am in hearty accord with, but why confine our efforts to the foot and mouth disease? Last year there were reported 133 deaths from small-pox in this state and so far as I am informed there was but little concerted effort made at control. Small-pox is absolutely a preventable disease; then in the face of the above reports it certainly seems that somebody was remiss in their duty. So, I again urge that the doctors of Arizona take a more definite stand for the application of principles of preventive medicine.

MEDICAL TREATMENT OF PEPTIC ULCER, WITH REPORT OF SIXTY CASES*

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For many years two essential factors have been recognized as conditions contributory to the development and chronicity of the clinical type of peptic ulcer.

1. Local malnutrition or necrosis of the mucous membrane and walls of the stomach or duodenum.

2. The destructive action of the digestive gastric juice on such local areas of malnutrition or necrosis as exist. Well nourished and otherwise undamaged tissue fully resists peptic digestion.

It matters not whether the tissue be protected by its normal coverings

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or whether raw surfaces are exposed. The rapid healing of experimental ulcer produced, for example, by the injection of silver nitrate is thus explained. Unquestionably, peptic ulcer, developed and attended by few or no symptoms heals without treatment in an enormous number of instances. This is proved by the fact that five percent of all post-mortem examinations show either healed or open peptic ulcers. The tissue adjacent to or constituting the surface of such ulcer is enabled, through adequate nutrition or vitality, successfully to resist the eroding action of gastric juice and such other hindrances to healing as may exist. All accumulated evidence has demonstrated that when tissue lowered in vitality from any cause is exposed to the digestive action of the gastric juice, the surface of that tissue becomes eroded. The healing of peptic ulcer is retarded and prevented by the eroding action of gastric juice proportionately to the diminution in the vitality of the tissue exposed in the ulcer, and the constancy with which digestive gastric juice is in contact with the ulcer. The digestive or eroding action of gastric juice is due to the solvent action of pepsin in the presence of free hydrochloric acid.

As an eroding agent gastric juice is absolutely inert in the absence of free hydrochloric acid. With free hydrochloric acid accurately controlled the greatest hindrance to the healing of ulcer that is amenable to medical or surgical control is removed. The conditions for the healing of the ulcer are thus rendered as ideal as possible in the light of all accumulated knowledge. This method of treatment actually and effectively destroys the disintegrating and digestive action of the gastric juice and thus protects the ulcer from gastric juice corrosion until healing of the ulcer takes place. Nature, thus aided, fills in the defect with granulation tissues. Cicatrization of the ulcer now occurs approximately as rapidly as it does elsewhere on the surface of the body.

The beneficial influence of gastro-enterostomy in bringing about a cure of gastric and duodenal ulcer through a reduction in the free hydrochloric acidity from 14 to 30 percent, as is asserted, and more particularly through the accelerated emptying of the stomach, thus reducing the gastric juice contact, has been the recognized explanation of the wonderful relief of symptoms, and the apparent and real cures following successful gastro-enterostomy, when applied to ulcer associated with high grade obstruction. In high grade obstruction the contact of the irritant contained in the gastric juice is reduced from 24 hours to between 9 and 15 hours, in each 24 hour period. If the healing of obstructive ulcer is so greatly favored by such a limited reduction in the duration of peptic gastric juice contact, is it not logical to conclude that the healing of the ulcer would be much more greatly favored by destroying virtually all peptic activity by the administration of alkalies and other drugs that neutralize the free acid of gastric juice, in carefully regulated doses, thus much more efficiently protecting the ulcer from gastric juice contact than would be possible by gastro-enterostomy or any other operative procedure that does not occlude the pylorus?

The minute details of this method are given in the Oxford Loose Leaf Medicine, in the Nelson Loose Leaf Medicine and the Medical Interpreter. Time does not permit giving them here, but in brief it consists of the following:

Physical rest for three weeks. Two alkalin powders are used; No. 1 contains ten grains of calcium carbonate and thirty grains of sodium bicarbonate; No. 2 contains the heavy oxide of magnesium and sodium bicarbonate, of each ten grains. In the non-obstructive types of ulcer the powders are given alternately every hour from 7 a. m. until 7 p. m. After 7 p. m. every thirty minutes until 9 o'clock, at 9:30 the contents of the stomach are aspirated. In addition to the above, three ounces of equal

parts of milk and cream are given midway between each powder, the last milk and cream being given at 6:30 p. m. After the second day a diet consisting of the bland foods is allowed, two small feedings being given on the second day, four feedings on the third day, and thereafter a feeding every two or three hours, the last one being not later than 5:30 p. m. The management of the obstructive type of ulcer differs chiefly in the following particulars; in many cases a larger quantity of alkali is required to control the free acid of the day secretion. The best results are obtained by emptying the stomach every night at 9:30, one half hour after the last powder is taken. The greatest stimulus to a night secretion is thereby removed. If an excessive night secretion is present it should be controlled as follows; a powder consisting of 30 grains of calcium carbonate should be given every 30 minutes from 9:30 until 11:30, and the stomach aspirated again at midnight. If more than two or three ounces are present at the midnight aspiration, the powders are continued every hour until the midnight aspiration recovers nothing from the stomach. As a rule at the end of a week the stomach does not contain more than one-half ounce of secretion at midnight, and in two or three weeks the 9:30 aspiration will be reduced to the same figure, and the powders following the 9:30 aspirations are omitted. A small amount is aspirated from the stomach at three o'clock in the afternoon just before the regular powder, and this is tested for the presence of free hydrochloric acid. Whenever free hydrochloric acid is found at any aspiration, five grains of calcium carbonate is added to each powder. This addition is continued until no free hydrochloric acid is present in any of the aspirations. In approximately 85 percent of all cases of pyloric obstruction due to ulcer, ranging from the lowest to the highest grade, the obstruction is overcome during the first three weeks of treatment to such a degree that a full meal of ordinary food is discharged through the pylorus within the normal seven hour period. In such cases the obstruction is not due to actual tissue narrowing, but presumably to spasm of muscles, acute inflammatory swelling, and rarely local peritonitis. In the remaining 15 percent of cases the obstruction yields more slowly and is due to actual tissue narrowing, which cannot be overcome completely without surgical interference in approximately one half of these cases.

As far as the hindrance to healing occasioned by the digestive gastric juice is concerned, the conditions for the healing of the obstructive type of ulcer, following gastro-enterostomy are rendered approximately the same as those that are present in cases of non-obstructive gastric or duodenal ulcer, without treatment.

In selecting sixty cases for report I have not included a large number of cases whose clinical histories and laboratory findings are suggestive but not conclusive for a diagnosis of ulcer, and whom it was found necessary to place on ulcer management, but whose response to the treatment was not typical enough to warrant a positive diagnosis. Even though some cases showed improvement in their condition, and some were apparently cured, the presence of ulcer was still questionable. Neither have I included patients who remained on treatment a very few days and obtained temporary relief, or who drifted away without leaving any record of their condition. This group of patients presented the well known distress syndrome:

1. Distress or pain coming on from one to three hours after meals.
2. Alleviated by ingestion of food.
3. Relieved by the administration of alkalies.
4. Associated with free hydrochloric acid.
5. Absent when the stomach is empty.

The majority of these patients have been x-rayed, and where positive radiological evidence was not obtained, their clinical history was so typical

that the diagnosis of ulcer was beyond doubt.

Four of these patients were patients with acute hemorrhage. Treatment of gastric hemorrhage is based on the same principles as that of other symptoms of ulcer; neutralization of the free acidity. Recurrence of hemorrhage depends on the digestion of the clot. Before the clot is organized it does not offer any more resistance to the action of gastric juice than albumin in the Mett tube. The principles involved in the treatment is to afford protection to the clot against the disintegrating action of the gastric secretion until it becomes organized. This result is secured by inhibiting the activating influence of the free hydrochloric acid on the digestive power of the pepsin. The acidity of the gastric juice is neutralized by the alkalin powders. One should not make use of alkalin gas producers. Recourse should be had to calcined magnesia. The patient should be in complete repose, both gastric and general, secured if necessary by the subcutaneous injection of morphine and atropine, and the following powder administrated; calcined magnesia 50 grains, calcium carbonate 50 grains. If the hemorrhage has occurred during the digestive period, that is in a very acid stomach, two or three hours after a full meal, the same dose is repeated in one half hour. And every half hour after this for ten to twelve hours, a powder consisting of 30 grains each of calcined magnesia and calcium carbonate is given. After that, in order that the patient may get a little sleep, calcium carbonate in 60 grain doses is given every hour. On the second and third days 30 grains of calcium carbonate is given every half hour, and 50 grains every hour during the night. To overcome thirst and nausea allow the patient to suck pieces of ice or oranges. Feeding is resumed on the third or fourth days, giving one ounce of milk and cream each hour, and the powders are then given midway between the milk feedings, the milk is increased to two ounces on the fourth day and three ounces on the fifth day, and thereafter the treatment is the same as already described. It is dangerous to employ the stomach tube for eight to ten days after hemorrhage for fear of setting up further hemorrhage, either by disturbing the blood vessel, or by the retching on the part of the patient. Acute hemorrhage has not been repeated after the treatment as outlined has been established 24 hours. Two of these patients received preliminary hypodermics of morphine and atropine, one required a second hypodermic, the other two required no hypodermic at all. An ice bag was not even used on the stomach.

There are a number of points of interest about some of these cases which I shall briefly enumerate. Four of these patients are known to have pulmonary tuberculosis, but are completely relieved of their digestion symptoms at the present time. One patient with a history of stomach trouble and constipation for fifteen years, followed her treatment for five months with complete relief of all symptoms except constipation. She had an acute attack of appendicitis, and was operated upon; since that time she has been completly free from the constipation also. One other patient with a long history of digestive disturbance has been completely relieved and is able to follow a full diet, but has had two distinct attacks of biliary colic. One more of the patients was relieved of all digestive disturbance and weighs fifteen pounds more than he has weighed in ten years, but still suffers from constipation. This patient has a marked tenderness over the gall bladder region, and no doubt has a chronic cholecystitis. One of the patients suffered an acute hemorrhage, three years ago. Previous to this time had had stomach trouble for five years during her high school and college courses. She followed her treatment for nine months and was completely relieved of all digestive disturbance, but two months ago had another

acute hemorrhage from the stomach, this time, however, not associated with any pain or digestive disturbance of any kind. The radiological examination of this patient has failed to show the location of any ulcer. The stomach analysis shows a very high degree of hydrochloric acid. While there is little doubt but that this patient has had a hemorrhage from a peptic ulcer, it is impossible to say on account of the complete absence of pain and digestive disturbance from this last hemorrhage whether the old ulcer has opened up or whether she has had a new ulcer. At the present time she is completely recovered and teaching school again. One of the patients with a long history of digestive disturbance and with a very characteristic type of penetrating ulcer of the lesser curvature demonstrated by x-ray had a subacute retrocecal appendix, which was removed after the preliminary three weeks of treatment. The treatment relieved the digestive disturbance but a marked tenderness over the appendix region continued. With a history of several acute attacks it was decided to remove the appendix. She has been free from all distress for two and one half years. One other patient, a man of seventy with an obstructive type of ulcer and with a barium residue of approximately one-third of his barium meal and sixteen ounces of his motor meal, followed his treatment for one year. At the end of three weeks, while on the bland diet his stomach was empty at 9:30 at night, but still gave a four ounce retention after his motor meal. During the first two weeks on treatment this man gained thirteen pounds. While on treatment this man aspirated his own stomach every night, and after three months time on a very liberal diet, his stomach was empty every night, and was completely free from all digestive disturbance. A year later, while visiting in Los Angeles, he developed acute appendicitis and died following operation. One other man had a very large ulcer on the lesser curvature of the stomach and his stomach was so enormously dilated that an acute angle was formed at the pylorus, making it impossible for the stomach to ever empty at all. He followed his treatment for three months and was absolutely free from pain, but was obliged to aspirate his own stomach every night. He was 60 years old and was not a very satisfactory patient for operation so was not urged to have a gastro-enterostomy performed. Six months later he died from an acute nephritis. Post-mortem examination showed an ulcer on the lesser curvature with a crater as large as a fifty cent piece, but which was completely covered over with mucous membrane. Microscopic examination failed to show any signs of malignancy whatever. One other patient has followed his treatment for one year accurately, has had no pain, has gained 20 pounds in weight, but after two and one half years he still suffers from constipation and is obliged to aspirate his stomach every night or there will be a residue. He needs a gastro-enterostomy, which he is making arrangements to have performed. Two other patients have definite tenderness over the appendix, and the appendix was also demonstrated by x-ray, but have no more digestive disturbance and refused to be operated on. One other patient who had a resection of pylorus and gastro-enterostomy, presented typical symptoms of ulcer again; she had several ounces of retention from the motor meal; she was completely relieved by treatment. Although it was impossible to demonstrate, she probably had a jejunal ulcer. In all patients foci of infection about the roots of the teeth and in the tonsils and elsewhere are sought for and removed. Abscess about the roots of teeth may be responsible for recurrence of ulcer, extending over a period of years. The observations of these patients merely indicate that very often more than one pathological condition is present in the abdomen. Of the remaining cases, their digestive disturbances are completely

relieved up to the present time. The period of treatment for these cases is one year. Some of them become careless, and after three to six months think that they are completely cured and omit their powders. Some of these may have recurrences.

The evidence that there will be no recurrences in those cases who have followed their management carefully for one year, and in whom the free hydrochloric acid has been accurately controlled, and the stomach empty at night, is based upon the results of several thousand cases that have been treated by this method since it was first instituted in 1903.

I can add to this list of 60 cases, about ten others who have definite peptic ulcers, who did not take the preliminary three weeks of physical rest, and who follow their management spasmodically, just long enough to obtain temporary relief from their recurrent attacks, and then forget it again. Most of them do not worry because they know they can always obtain relief. Two of these need gastro-enterostomies.

In summarizing the results of medical treatment:

1. Pyloric obstruction is influenced in the manner described.

2. The pain of ulcer is completely controlled. It usually disappears the first day, and if not it grows less and seldom continues more than two or three days. If it does continue the diagnosis is very probably wrong and one is not dealing with ulcer. Distress that appears or continues at a later date while on management suggests the presence of excessive night secretion that is not being controlled. Distress appearing ten days after management has been accurately applied is practically never attributable to ulcer. A colon irritated by too much magnesia is a frequent cause of such distress.

3. Excessive night secretion is controllable.

4. Hemorrhage ceases, occult blood disappears from the stool in a week or ten days and does not recur while on management.

5. Perforation has not been known to occur after the second day while on management.

6. The penetrating type of ulcer is rapidly influenced. The defect as shown by the x-ray relatively rapidly disappears. If the defect is not definitely influenced during the first two weeks of treatment cancer is thereby suggested; the defect is due to an old cicatrix and the conditions for healing are not good. Exploratory laparotomy should be seriously considered.

7. Ulcers of the stomach and duodenum that fail to heal after gastro-enterostomy and other surgical procedures are relieved at once of the distress symptoms and eventually healing takes place in many instances.

8. Healing of ulcer occurs, as demonstrated at necropsy.

DISCUSSION

DR. S. H. WATSON (Tucson): I do not like to be on my feet so much, but this is an important paper of Dr. Milloy's, and ought not to be allowed to go without discussion. If all of us would make our diagnosis of peptic ulcer and treat our patients who have it in the careful and detailed manner, outlined by Dr. Milloy, there would be less work for the surgeon to do. There is no question at all in my mind but that a lot of cases of peptic ulcer are operated upon, who could be absolutely cured, medically, (even some of these with pyloric obstruction, for the obstruction is frequently not organic), if the patient were put to bed, at rest, and a careful, detailed treatment given such as Dr. Milloy has outlined. I think this is a very important possibility and should be more generally recognized.

DR. AVERY NEWTON (Los Angeles): I think Dr. Milloy has given us a very valuable paper and one thing he did not go into was the number of patients who at present cost of hospitalization cannot be hospitalized. So in those cases I am using tremendous amounts of alkalies. I don't think you can use too much alkali. Many doctors don't get the same result with this line of cases because they are afraid of the alkalies. Twice as much as Dr. Milloy recommends won't hurt them. Now, if the case has to stay at home, as many of them do, give them great quantities of alkali. Feed them on the milk—half milk and half cream. Some cases can't take that much cream and you have to modify it. Of course, every case is an individual case in itself but the point I want to bring out is the tremendous amount of alkali that you

should use and the fact that if you do that you can manage a good many of these cases at home and they get well just as well as where you have to take out the residue three or four times a day. I have under my care now at least twenty of them. There are none of them in the hospital and none of them having any trouble and getting along just as well as those who are in the hospital and I feel that they can be treated at home very well and a great many of them are being treated at home. I am not decrying sending cases to the hospital but most places are so short of hospital facilities. Hospitals don't grow like pavements and such things in the city. The city won't do anything towards building up a hospital. People don't seem to care whether there is any place to go when they are ill, so that most of the places that I know of are woefully short of hospital facilities and then there are a great many working people who can't afford to go to the hospital, so that you treat those cases at home and, except that you can not be sure of having some intern wash out the stomach, you will find that you get most excellent results.

DR. ROY E. THOMAS (Los Angeles): I have not had the success in the treatment of ulcer cases in the home that Dr. Newton has had. I believe this is due to the fact that it is much more difficult to enforce absolute rest in the home than in the hospital and I believe rest to be one of the most important factors in the Sippy treatment of ulcer outlined by Dr. Milloy. Rest lessens peristalsis and in this way diminishes the secretion of hydrochloric acid and digestive ferments.

The administration of the massive doses of alkali which Dr. Newton suggests I believe to be dangerous. I have seen at least two cases which developed alarming symptoms following such treatment.

Dr. Milloy's excellent paper again emphasizes the fact that the great majority of cases of ulcer of the stomach and duodenum can be successfully handled medically.

DR. JAS. M. MEASON (Chandler): I want to disagree with Dr. Thomas in regard to the rest. I think the principal stress should be on the neutralization of the acid. Of course, we would not have the rest minimized but it is the free hydrochloric acid that does the damage in peptic ulcer. It is the thing that keeps an ulcer going when once started. If I had to take my choice between rest in bed and intensive alkaline treatment, I believe I would choose the latter. We cure the ulcer by neutralizing and combining the free hydrochloric acid. Of course restriction of diet and absolute rest are factors that enter into the equation of appetite control and limiting gastric secretion to the minimum requirements especially in digestion, etc., that is quite important, but the control of free hydrochloric acid is the main thing. I think it is more the satisfaction of the doctor in seeing how much acidity he has than the ultimate good accomplished by aspiration of the stomach. It is a good idea to check up on it occasionally but I don't believe that has to do with the cure, only as a guide as to the amount of alkalinity required for the neutralization of the acid and when he has it down to a safe point.

DR. R. J. STROUD (Tempe): Dr. Milloy emphasizes the fact that you have to follow these patients for at least a year and a half, perhaps longer. It depends on the character of the ulcer you have. A healed epithelium over an old scar does not preclude the fact that you have the same condition present; you do still have a lot of acidity present in the stomach because of this irritable scar.

Because of this irritation, if you do not follow these ulcers along, you fail to get complete cure, and they keep on recurring until they go to a surgeon for treatment. They forget the alkalis. They forget to come to you. You have to explain that the cure of stomach is for as long a time as a cure for tuberculosis. But it is hard to keep a man who is up and around and apparently well to keep up with his alkalis. That is the hard thing about these patients, to get them to keep up treatment for a long enough time so that you can look them in the eye and tell them the ulcer will probably not return.

DR. C. A. THOMAS (Tucson): In Dr. Milloy's paper, there are two or three points I want to emphasize. The first is the diagnosis. I think many times gastric ulcer or peptic ulcer has been treated over long periods of time, that is, patients have been treated for peptic or gastric ulcer over a long period of time without having such a condition present. About 80 percent with gastric symptoms are produced outside of the stomach itself. The appendix, the gall bladder and things of that kind produce about 80 percent of the gastric symptoms. For that reason, I would urge that before treating a condition as gastric ulcer that it be proven positively. Several of his cases reported indicate that probably the appendix could have caused all of this, because they developed appendicitis later and, from the standpoint of surgery, I feel that the case might have been cured, some cases at least could have been cured easily by having a chronic appendix removed. Another point I would like to emphasize is the possibility of infection foci in the mouth, teeth, nose and throat; I feel that hydrochloric acid will not cause an ulcer, even in the case of traumatism, unless we have the added factor of infection. Secondly, I feel that all peptic ulcers should be treated as secondary conditions instead of primary. In other words, eliminate the possible foci of infection and your treatment will be much more satisfactory. In regard to hemorrhage of the stomach, I must confess that I do not know how to carry out this treatment that the doctor suggested here. I am not up on the Sippy management. In hemorrhage of the stomach I would wash the stomach out with real hot water and the hemorrhage

stops; I think that is more rational than to continue the regime of alkalies to control the hemorrhage.

DR. MILLOY (closing): I wish to thank everyone for their discussions of the paper. In reply to Dr. Newton's suggestion about the amount of alkali, there is a condition known as alkalosis, resulting from the administration of too much alkali. It is most likely to occur in patients who have an impaired kidney function. I have had two such cases. The signs of alkalosis are very readily recognized, and the withdrawal of the alkalis results in complete recovery in a day or two, without any permanent or serious after affects. However, I always make frequent determinations of the alkali reserve of the blood, especially during the first three weeks, on all patients taking large amounts of alkali. An increase at any time warrants very close watching.

In regard to Dr. Thomas's remarks about a period of rest at the beginning of treatment; that has been very firmly impressed on my mind just recently when two patients who followed their treatment, but did not take the preliminary rest period, have had recurrence of the ulcer distress.

Around the subject of diagnosis probably depends more than anything else the successful treatment of peptic ulcer, and very, very often the failure of medical treatment of peptic ulcer is due to the fact that no ulcer exists. Likewise the patient may have an ulcer plus some other condition, and does not get well because both conditions are not recognized. I do not believe that there is any other disease in which the therapeutic test is any better demonstrated than in peptic ulcer. In the vast majority of cases the pain or distress is relieved from time the first dose of alkali is taken. Even the most intense pain which is scarcely affected by morphine is completely relieved. Occasionally it is necessary to give the powder every hour all night for a few nights at the beginning of the treatment. And when the symptoms do not disappear in a few days it is probable that the wrong diagnosis has been made. The cases which I have referred to are for the purpose of giving examples of multiple pathology within the abdomen. Time did not permit giving case histories, but in each case there was typical ulcer distress, and direct radiological evidence of peptic ulcer. The object is to show how very frequent it is to find an infected appendix or a chronic gallbladder along with a peptic ulcer. Just recently I had a case of duodenal ulcer whose very first symptoms dated back two years to the convalescent period following operation for a gangrenous appendix. If this had not been an extremely bad appendix we might have been led into believing that this patient's acute symptoms at the time of operation were the beginning of his peptic ulcer.

EXTENSION TREATMENT OF SUPERCONDYLOID FRACTURE OF HUMERUS*

ISAAC L. GARRISON, M. D., Phoenix, Arizona.

Of the six classified classical fractures of the lower end of the humerus, the supracondyloid fracture (epiphyseal in the young) is the most frequent.

The plane of these fractures may pass through the humerus at any conceivable angle, and when very low or diacondyloid may pass through the olecrenon fossa, with or without a T fracture into the joint. In the first age period supracondyloid fracture generally involves the epiphyseal line, with a backward displacement of the lower fragment, and relative forward displacement of upper fragment. The internal displacement can easily be reduced and held, but the backward displacement is often a puzzle, and we often must be satisfied with compromising results.

The subject under consideration was a female, age 10. A negative history was given of tuberculous, luetic or other blood diatheses. The child in attempting to climb into a tree, climbed upon a large goods box, and in some way was hurled violently to the ground, first striking on the left elbow. The shock was so great that the child did not arise, and on attempting to give her help it was discovered that her left elbow was either broken or disolcated. There was profuse bleeding from a jagged wound just above the external condyle on the anterior external aspect of the arm.

The classical symptoms of pain, tenderness, swelling, loss of function, with the very unpleasant but significant condition of profuse ecchymosis

(*Read before the Thirty-Third Annual Session of the Arizona State Medical Association, at Phoenix, April 24-26, 1924.

was very much in evidence, with a decided backward displacement of a part or all of the elbow joint in its relation to the shaft of the humerus.

At this juncture a part of one word in the title of this paper, "super," instead of "supra" in supercondyloid, becomes apparent in the largeness of the problem on hand. This can be no other than a compound fracture, with the probabilities of being comminuted, with a chance involvement of the brachial artery and median nerve, with gangrene or lockjaw, one or both looming very large on the horizon of probabilities, so we prefer to call a supracondyloid fracture when compound, supercondyloid. The external wound and arm were disinfected with alcohol, and the wound dressed with boric acid powder. A right angled triangle splint of yucca and adhesive plaster was formed and placed in juxtaposition to the bend of the elbow, with cotton wadding. Two shorter splints were made ready and placed in position. A whiff of chloroform gave the necessary relaxation to give quick extension and flexion to a right angle. An acute angle seemed impossible on account of the swelling, ecchymosis, and the probability of an involvement of the artery and nerve. Reduction as judged by palpation and disappearance of deformity seemed complete.

The next day, August 14, 1923, an x-ray showed the upper fragment forward 2 cm. and the lower backward the same distance, from an external-internal aspect. The x-ray at right angles to this or from an anterior-posterior aspect showed the fragments out of alignment 1 cm.

In view of the potential complications, after consulting several good surgeons, it was decided to. put the arm in a fracture box and give extension by weights. This was done on August 16th, commencing with a five-pound weight, and padding arm in box in such way as to press the lower fragment forward and the upper fragment backward.

X-ray on August 29th from external-internal aspect shows perfect alignment; from anterior-posterior aspect shows a displacement of 1 cm.

On August 30th arm was put up in a leather hinged splint in an acutely flexed position, and was fixed to a padded board so pressure could still be applied in a backward-inward direction on upper fragment, and in the opposite direction on the lower. On September 3rd passive motion and massage was ordered. Passive motion, massage, extension, flexion, and rotation were ordered September 7th. The last of September the patient was relieved of all impediments with a perfect carrying angle and a normally functioning elbow.

DISCUSSION

DR. H. L. GOSS (Phoenix): This short paper of Dr. Garrison's could have been elaborated very easily, because he did a large amount of work demonstrating this particular condition. In my own work I have seen many cases similar to this, but the thing which is of more interest to me is the originality which the doctor displayed in making a screen which could be applied to any of the extremities in locating the deviation of the bone fragments in case of fracture. The screen is made of a thin piece of wood, in which are embedded many wires, crossing each other at a distance of a centimeter. This apparatus can be placed in close relation to the x-ray film and by making the films in two planes non-alignment of the bone fragments may be measured.

ROSWELL (N. M.) NEWS ITEMS

Drs. Joyner, Ingalls, Bradley and Yater, all of Roswell, attended the meeting of the Eddy County Medical Society at Artesia, on the afternoon of July 25th. A very interesting meeting was presented.

Dr. W. T. Joyner, with his family, has returned from a vacation trip to Cloudcroft.

Dr. C. M. Yater returned on July 24th from a visit to his old home at Cleburne, Texas.

Dr. H. A. Ingalls left on July 28th for Fort Logan, Colo., to spend two weeks at the army encampment.

Dr. O. R. Haymaker will leave soon for a two weeks' stay at the army encampment in Arizona.

Dr. W. E. Goodsell has moved his office from the Garst Building, on Main street, to 309 North Richardson avenue.

Dr. E. M. Fisher, who recently had quite a siege with erysipelas, is again up and at his usually busy office.

C. M. YATER, Secretary.

APPENDICITIS DURING PREGNANCY

VICTOR M. GORE, M. D., F. A. C. S., Tucson, Arizona.

The first recorded case of an appendix operation on a pregnant woman was reported just thirty years ago. Munde was the operator. In 1897 Abraham reported eleven cases from American literature, and added four that had come under his personal observation. He reported a mortality of fifty-three percent for the mother and over ninety percent for the child.

Boije of Helsingfors collected thirty-one cases in 1902, with fourteen maternal deaths and eighteen abortions. Up to 1910 there had been reported in the medical literature of the United States, Canada and Europe five hundred cases. Since that time there have been recorded many hundred cases, both in this country and abroad. The mortality has been greatly decreased, but still remains at a terrific figure.

De Lee, writing in 1921, says that "Acute appendicitis is met during pregnancy with probably no more than the usual frequency. In the last few weeks of gestation, and during labor, it is very rare." He has encountered only four cases in latter weeks of pregnancy in thirty years of obstetric practice.

Reports from the large obstetrical clinics of Paris, Berlin and Vienna indicate a greater frequency of acute appendicitis in late pregnancy than is given by De Lee.

Percentages of frequency are not the important thing. We must ever keep in mind that appendicitis occurs in both sexes at all ages.

ETIOLOGY

The causes of appendicitis in the pregnant woman are the same as in the non-pregnant. It is not believed that pregnancy per se is to be accused of bringing on an inflammation in an appendix that is previously healthy.

There is abundant evidence that the occurrence of pregnancy in a woman who has had previous attacks of appendicitis of any form is of very grave consequences.

While pregnancy is an entirely physiological process, it does, in the presence of pathology of any abdominal organ, aggravate a condition that may for the moment be quiescent.

Pregnancy has many complications, but by far the most important and the one of greatest consequence to both mother and child is appendicitis. Let me say to those of you who have been fortunate in not encountering a ruptured appendix with a general peritonitis late in pregnancy, that you have escaped one of the most distressing experiences that befall the man doing abdominal surgery. Peritonitis is not a thing of beauty at any time, and in late pregnancy its horrors are multiplied many times.

SYMPTOMATOLOGY

The symptoms, of course, vary with the type of the disease, just as in the non-pregnant. There are, however, a number of variations during pregnancy that do not obtain in the usual case.

The clinical picture shows quite a wide variation. In general, the symptoms are inconstant.

Occasionally we find a woman who has had no history of previous attacks, and who has only the usual amount of constipation that is common to almost every pregnancy. Suddenly she becomes aware during the last half of her pregnancy of a vague pain about the umbilicus. This gradually becomes localized in the right lower quadrant. Upon palpation of the abdomen we find rigidity and hyperesthesia in the right iliac fossa. The point of greatest tenderness is not at McBurney's point, but higher, and toward the loin. At times the tender point is at the umbilicus, or slightly above.

The pulse is unchanged. The temperature may be normal, or show an elevation of one degree. There is usually some vomiting. This is a very variable symptom. In the chronic and recurrent forms I have found that the physiological vomiting of early preg-

nancy is increased in severity and prolonged beyond the ordinary time of cessation.

These symptoms intensify rapidly and others appear. The temperature rises; the pulse becomes rapid and of poor quality; the face shows the expression typical of peritoneal involvement; the tongue is dry; the respiration becomes of the costo-diaphragmatic type, and palpation of the abdomen shows marked rigidity.

There are frequent contractions of the uterus. The patient complains of great activity of the part of the fetus.

Most frequently the type is chronic, with a history of former abdominal distress, especially during previous pregnancies, and the patient's chief complaint is vomiting. It is frequently with difficulty that the point of greatest tenderness is found to be about McBurney's point. Bi-manual examination reveals a tender mass in the right pelvis high up, and easily mistaken for a tender ovary.

I am assuming that you are all convinced that there is such a disease as chronic appendicitis. There is an epigram credited to a prominent eastern internist that "there are two kinds of appendicitis—acute, and for revenue only." A more silly remark has never been made, if made in any degree of seriousness.

DIFFERENTIAL DIAGNOSIS

The difficulties here are usually due to digestive disturbances, liver, kidney, uterine, or adnexal disease.

While vomiting is frequent in pregnancy, it should cause suspicion when preceded by pain, or accompanied by fever. Remember, that in vomiting, not complicated by a pathological process, the pain is subsequent to the emesis, and is at the insertion of the diaphragm.

Intestinal obstruction can simulate appendicitis. Strangulated hernia is a possibility in early pregnancy, but is very rare after the fifth month, as the ascending uterus raises the intestinal mass, and obliterates the hernial openings.

Typhoid fever should be distinguished by the characteristic prodrome of headache, nose bleed and lack of sudden, acute pain.

Entero-colitis should be eliminated by stool examination.

Gallstone colic is differentiated by sudden cessation of pain, absence of fever, and, in the later stages, icterus, and discoloration of stools.

Cholecystitis offers greater difficulties, as the symptoms are quite like appendicitis, and the gallbladder tumor may simulate an abscess about the appendix. Here careful history and careful palpation will usually show clearly to which disease the symptoms are due.

Kidney affections are usually quickly discovered by a study of the urine, together with the fever cure and previous history.

Tubal trouble begins with less acuteness; a ruptured tube may, however, produce a peritonitis.

Suppuration of a fibroid or an ovarian cyst following torsion of a pedicle might cause confusion. Examination, except in the very fat, should eliminate these.

In rupture of an extra-uterine pregnancy the symptoms of hemorrhage, absence of fever and pelvic findings should point the way.

Diagnosis in a case of both intra and extra uterine pregnancy would be very difficult, but fortunately these are very rare. Here, too, the absence of fever and the blood examination should clear the picture.

The progress of appendicitis in pregnancy is more rapid than otherwise. Early perforation and general peritonitis are the rule especially late in pregnancy.

The influence on the pregnancy varies widely according to the type and severity of the disease and the stage of the pregnancy. Abortion and miscarriage frequently occur in late cases and are due to the toxemia or septicemia resulting from resorption of the bacilli and uterine infection by way of the lymphatic vessels of Coldo's ligament. Or, the infec-

tion of the uterine cavity may occur through the tubes. This is, according to a number of European investigators, the most frequent route. In that case, the liquor amnii is first infected, then the respiratory tract of the fetus, and lastly the placenta by way of the fetal circulation. Infection of the uterus may occur through the peritoneum by continuity. And lastly, the infection of the uterine cavity and the fetus may occur through the blood stream as part of a septicemia. Infection of the uterus and its contents results in spontaneous interruption of pregnancy.

Cases have been reported where the appendicitis occurred near term, perforation and peritonitis were followed by labor, a living child was born that succumbed in the course of five to eight days with a general septicemia.

Experiments carried out on pregnant rabbits, consisting of ligating the Fallopian tubes and introducing into the free abdominal cavity streptococcic pus, showed infection of all portions of the fetus as early as four hours.

These experiments would indicate the blood stream as the route of election.

Peritonitis in the pregnant state is more widespread and more virulent than in the ordinary case. The protective forces are less strong; the toxemia is more profound.

Adhesions are much slower to be found, as the uterine tumor pushes the omentum and the intestinal mass away from the cecum.

The intense vascularity of the parts makes the the inflammation more stormy. Thrombosis and phlebitis are more common. Pus formation occurs at a higher level in the abdomen, especially in later pregnancy where the resistance is less.

Drainage is greatly interfered with by the large uterus. Tympany that embarrasses respiration appears very early. Symptoms of obstruction appear much earlier than in the non-pregnant. Ileus is much more frequent. The weight of a five or six months' pregnant uterus combined with exudate under pressure in the abdomen can readily produce obstruction by pulling and pressing on the adherent loops of intestine.

Pregnancy alone very seldom causes symptoms of obstruction. The three periods when this is most liable to occur are; first, the time of the ascension of the uterus out of the small pelvis; second, when the fetal head becomes engaged in the pelvis at the end of pregnancy; and, third, the sudden insolution of the uterus after delivery.

While a few cases of ileus have been reported in patients who did not have a peritonitis, it is a comparatively rare condition. On the other hand, obstruction in neglected cases is very common. The most frequent site is in the large gut, although the ileum has been the site in quite a number of reported cases.

TREATMENT

The treatment is the same as in the non-pregnant. Operate as soon as the diagnosis is made, and make the diagnosis as soon as possible. Acute abdominal pain, tenderness over the head of cecum, beginning rigidity with referred pain, are sufficient to warrant an incision.

If we wait for the symptoms of beginning peritonitis, we will lose many patients that could have been saved. Leucocytosis with a high polymorphonuclear count occurs early, it is true, but in the language of Ochsner, it is safer to operate first, and read the report of the blood examination when the patient has left the operating room.

The anesthetic should be local. It is entirely possible to operate all of these cases without a general anesthetic.

Extreme care should always be taken to manipulate the abdominal contents as little as possible. There is no doubt that handling the gut and uterus are the principal factors in producing post-operative ileus and abortions.

The incision should be free. In the first half of pregnancy, para-rectal or transverse. In the latter months an oblique incision close to the spine of the ileum very similar to the one used for stone in the lower portion of the ureter is the most convenient.

Morphine should be given freely to keep down uterine contractions and lessen the likelihood of premature labor.

In the late cases, with free pus in the cavity, we should use the same surgical principles as regards drainage we do in the non-pregnant, with this exception—we must bear in mind that the resistance of the peritoneum is lowered, and drainage will be needed in cases of pregnancy that in the non-pregnant we would close.

Pregnancy should not be interrupted. Should labor be induced by the infection, it should be as short and easy as possible.

Cesarian section in the presence of a peritonitis is a surgical crime. Should it become necessary to evacuate the uterus by section, it should be removed, as it is already infected, and, left in the abdomen, will in nearly every case insure a fatality.

The ideal management of a case of appendicitis in pregnancy consists of immediate operation under local anesthesia, and we will avoid the distressing complications of a diffuse peritonitis. To temporize is to flirt with death.

Personally, I use one-half percent novocain for all my local work. I am convinced that this is the safest proportion we have at present. It gives a perfect anesthesia. It can be used freely, and is without danger to the child.

SUMMARY

Appendicitis is much more frequent in pregnancy than is generally supposed.

It occurs in both intra and extra uterine pregnancy, at all periods of gestation.

It is frequently overlooked, and its symptoms attributed to other causes.

It may be acute. It is most frequently chronic or recurrent.

Pregnancy aggravates existing pathology in the appendix, but does not of itself induce attacks in a healthy organ.

A diseased appendix can, and does, cause ectopic gestations.

Every type of appendicitis occurs during pregnancy.

The mortality of appendicitis during pregnancy is the mortality of delay in diagnosing and promptly operating all cases.

Operation does not cause abortion, if properly done.

The pregnancy should not be interrupted, as it increases the mortality.

The earlier in the pregnancy the appendicitis occurs the better the prognosis.

All women who have recurrent attacks of pelvic pain, dysmenorrhea, menstrual disturbances, and other pelvic disturbances which cannot be definitely accounted for, should be considered as cases of appendicitis.

All girls who have had attacks of appendicitis, and who are considering marriage, should be urged to have their appendices removed.

The mortality in internal cases, with local anesthesia, is practically nil.

This is true prophylaxis, and is the secret of reducing the mortality in a condition where the death rate is far too high.

Every case of appendicitis in a pregnant woman should be operated as soon as the diagnosis is made, regardless of the stage of the pregnancy.

In cases that have excessive vomiting, the appendix is very frequently diseased. Prompt removal will stop the vomiting at once.

Removal of all diseased appendices before the occurrence of pregnancy will reduce the mortality from thirty percent to less than two percent.

CASE REPORT

Acute Appendicitis in Tubal Pregnancy

Mrs. F. B., age 26, white, housewife.

F. H.: Father and mother living and in good health. Has four brothers and two sis-

ters, all living and in good health.

P. H.: Usual childhood diseases. Menstruation began at fourteen, regular 28-day type, without pain. Was married at eighteen; has four living children, all in good health. Labors all normal. Last menstrual period November 10, 1922. Patient states that she is now five months pregnant.

Has always enjoyed good health. With the exception of flu in 1918, has not had since childhood, except her confinements, any illness requiring her to remain in bed.

On the night of March 15, 1923, early in the evening, began suddenly having acute pain in the abdomen. This was located in the upper portion of the abdomen, immediately above the navel. Pain continued through the night; was so severe patient did not sleep. Was brought to hospital the morning of March 16th for relief of severe abdominal pain.

P. E.: Temperature 100; pulse 100; respiration 22, panting in character. Face drawn; patient evidently in severe pain. Heart and lungs were negative. Abdomen enlarged by a tumor the size of a six months' pregnancy. Muscular rigidity well marked over right lower quadrant. Extreme tenderness to palpation over entire right side. Point of greatest tenderness four inches to the right of umbilicus, and about one inch above.

Bimanual examination shows cervix soft, admits tip of one finger. Child's head felt through lower uterine segment. Patient complains of excessive fetal movements during examination. Vigorous movements are observed through abdominal wall.

White blood count shows a leucocytosis of 14,600, polys. 89 percent.

Diagnosis: Acute appendicitis, six months' pregnancy.

Operation: March 16, 1923. When peritoneum was opened there was poured out two or three ounces of clear serum. Appendix was rather easily delivered. There were no adhesions. Appendix about six inches long, was tightly distended, contained several hard concretions, vessels of appendix and mesentery were quite prominent. Near the tip was a spot one centimeter in circumference, quite dark in color, that showed a marked thinning of the coats.

On the terminal portion of the ileum there was observed a dozen or more grayish-white tubercle-like masses, discrete in arrangement, lying under the serosa, quite hard to touch, and about the size of No. 8 bird shot.

The parietal peritoneum was smooth and free from tubercles in the region of the wound.

Appendix was removed, stump ligated with catgut, and buried by purse-string suture of silk. One of the small tubercle-like masses on ileum was excised, and abdomen closed without drainage.

Orders: Morphine gr. ¼ every six hours by hypo. Water in small amounts. Murphy drip, glucose 10 percent in 5 percent soda bicarbonate solution.

Patient was fairly comfortable during the day. There was no vomiting.

At 8 p. m. patient complained of recurrent pains which she described as light labor pains. There was a small amount of bloody discharge from the vagina. Hypodermics of morphine gave relief in a short time.

3-17-23: Patient is comfortable; has no pain; takes light liquids. Pulse 100; temp. 99.4; respiration 20.

3-18-23: Flatus and fair amount of fecal matter expelled following enema. No complaint of uterine contractions. There is present a slight bloody vaginal discharge. Pulse 110; temp. 99.2; respiration 20.

3-19-23: Abdomen distended with gas, relieved by enema. Patient complains of nausea, but did not vomit. Pulse 110; temp. 99; respiration 20.

3-20-23: Fourth post-operative day. Patient vomited three times in four hours, large amount each time, dark brown material, the last emesis showing a feculent odor.

Gastric larvage. Hypodermoclysis of saline 600 c.c., nothing by mouth.

There was nausea throughout the day, but no more emesis. Following enema in the evening, flatus and a large bowel movement was expelled.

There was a slight vaginal discharge, brown in color. Patient slept well during the night.

3-21-23: Fifth post-operative day. Patient comfortable, voiding, flatus expelled freely, free from pain, very scant brownish vaginal discharge. Pulse 94; temp. 98.6; respiration 20.

Patient continued in good condition until the night of the 23rd, when she began having severe cramp-like pains at short intervals, with a free vaginal discharge. Nurse reported that a very free water discharge occurred from the vagina at 1:30 A. M., which she recorded as a rupture of membranes. Pains continued at intervals of eight to ten minutes in spite of heavy doses of morphine.

After consultation with Dr. Peterson, the morning of the 24th, it was decided to deliver patient.

Patient was anesthetized with ether, and manual dilatation begun. It was quickly discovered that the uterus was empty.

Abdomen was hastily prepared and opened in the midline. A large, bluish tumor the size of a six months' uterus was delivered. This sac was attached to the right broad ligament by a small pedicle. The pedicle was found to be twisted. The tumor had made two complete turns on its axis. There was blood-stained fluid in the abdomen. The mass had the odor of degenerating blood.

Pedicle was clamped, tumor removed, stump transfixed and ligated. Abdominal toilet made. One cigarette and one rubber drainage tube to pelvis. Abdomen closed in the usual manner.

Examination of pelvic organs showed

uterus in normal position, enlarged to three times its normal size. Left tube and ovary normal. Right tube included in tumor mass. Right ovary apparently removed with tumor.

The tumor was cut open and found to contain male fetus of about six months' gestation, apparently dead for thirty-six or forty hours.

LABORATORY REPORT ON TISSUE

Appendix shows partial necrosis of mucosa and moderate degree of round cell infiltration. Large collection of round cells between submucosa on muculoris, with a number of small hemorrhages. Diagnosis: Acute catarrhal appendicitis.

Small piece tissue size of pin head: Sections show a center which is mainly structureless, at points definitely necrotic. The cells stain poorly. Toward the periphery are epithelial in type. The outside area is a circular margin of fibro-connective tissue showing some increase of reticular elements. Diagnosis: Probably a miliary tubercle.

Gestation sac containing six months' male fetus.

Sections from pedicle show general fibrous structure and a marginal area of typical tubal mucous membrane. Diagnosis: Tubal pregnancy.

Patient made a rather slow recovery. Was seen last week, just a year after her discharge from the hospital. Is in apparently perfect health. Has not an ache or pain in the world, she states. Abdominal wall in good condition.

The combination of acute appendicitis, unruptured ectopic pregnancy of six months, and probable tuberculous peritonitis, with an apparent perfect recovery, being so unusual, this case is reported.

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DISCUSSION

DR. WILLARD SMITH (Phoenix): Dr. Gore hasn't left us much of anything to discuss. That is about as comprehensive a paper as I have ever heard. I am glad that the doctor takes the sensible view that a pregnant woman is entitled to just the same consideration as the non-pregnant woman or a man or a child. She is liable to the same things and is entitled to the same treatment. The matter of increased mortality during pregnancy I have probably not been awake to as much as I should. Looking back over my work, I remember but one case of appendicitis during pregnancy, on which I operated, that died; and this woman would have died had she not been pregnant. It was a neglected case and she had a belly full of pus for seven or eight days with a diagnosis of neuralgia and malaria. I need not say any more about that. Fortunately, that type of doctor is dying out. One thing that I have had to combat is the idea of an increased risk in operative conditions during pregnancy, as well as increased risk in some other things of which I have spoken before this society. When faced with a clearly surgical condition and one which delay will only make worse, a doctor is not doing his duty to his patient if he temporizes and hems and haws about statistics. His duty is to make a short, quick, immediate application of the principles that we all understand so well. I will admit that unnecessary handling of the viscera will increase the tendency to abortion, but it is surprising how much one can do in the abdomen of a pregnant woman and not produce abortion. One must not go at it with hammer and tongs. He must remember that he is dealing with tissues that deserve respect. If he does that, a lot can be done. There isn't any need of condemning a pregnant woman to death just because she is undergoing a physiological process. It is just as normal to be pregnant as it is to eat a full meal.

DR. GEORGE A. BRIDGE (Bisbee): I have been very much interested in Dr. Gore's paper because of the impression made on me by my first case of appendicitis in a pregnant woman. The case was a gangrenous appendix in a woman who was between four and five months pregnant. I had, a few days before that time, run across an article which was very pessimistic about the operative treatment in appendicitis in pregnant women, and, accordingly, I went at this work with a great deal of fear and trembling, but I am very glad to state that I did not have any different result than I would have had in any other case of gangrenous appendix. The woman drained freely and recovered without any abortion. I believe that in the last fifteen years I have had about twelve cases of appendicitis in pregnant women.

Another case, which was extremely inter-

esting was a cecum just below the spleen. For some unknown reason, the cecum had been pushed up below the left costal margin. The woman had a very high temperature, was vomiting severely and had a high leucocyte count. Of course, I went in without having any idea what I was going to find. I found a gangrenous, ruptured appendix, which was hurriedly removed, and about ten days later the patient aborted, but lived through the ordeal. The others have all been acute, clean cases, but all have recovered. Out of ten or twelve cases, I don't recall just how many, but it is about that number, none of the cases have died, but two of the women have aborted. It strikes me, as Dr. Gore says, that the thing to do is to go ahead and operate as if the woman was not pregnant and you will probably get just about the same results.

DR. J. M. GREER (Mesa): There is one point I would like to bring out relative to handling appendicitis in pregnancy. We all like to see our cases of appendicitis early and the danger in these cases lies in NOT getting them early. That brings up the question of handling our cases of pregnancy. It has been our practice in the last few years not to take any case of obstetrics unless we have some opportunity of seeing them before labor. This gives us an opportunity to take their history and examine them, and we like to get those cases as early as possible. If the public can be educated up to this procedure, it would be a great factor in handling obstetrics, and also a great factor in handling appendicitis or any other abnormality or complication in pregnant women. In taking a history, we have an opportunity to find out whether or not they have had attacks which might have been appendicitis or any other important illness, and have an opportunity to examine them and find out whether they have chronic appendicitis or not. We also have an opportunity of giving them a word of advice as to what they should do if anything happens to them, if they should have any pains or anything of that kind. In that way, if they do have an attack of appendicitis, they usually call us up or get in touch with us. Otherwise, they might think it is the normal consequence of pregnancy to have some indefinite abdominal pains and neglect it and not call a doctor for several hours. I would like to thank the doctor for his paper; every sentence he uttered seemed to have a thought in it.

DR. W. O. SWEEK (Phoenix): Like Dr. Greer, I think Dr. Gore's paper is very much worth while and timely. The very high mortality from cases of ruptured appendix and general peritonitis in pregnancy can be avoided by, you might say, operating on suspicion. You will not do your pregnant woman any harm by operating on her, but you might lose the child and the woman by neglecting to operate. The danger of miscarriage or abortion during operations in the abdomen is very, very slight. I have never had the uterus empty itself following an abdominal section. I operate on pregnant women with just as little hesitancy as I would on any other woman. I have removed fibroids from the pregnant uterus. In one case the uterus was held down in the pelvis, and there was present an acutely inflamed appendix. I removed the appendix and the fibroid that was holding the uterus down and three other small fibroids that were attached to the uterus. The patient made an uneventful recovery and left the hospital in ten days. In another instance the appendix was adherent to the gallbladder, the cecum being high up, making a very difficult operation. No trouble whatsoever afterwards. The idea that you have to curet the uterus if the woman has missed a menstrual period or two, in order to operate for appendicitis, is entirely wrong. There are some instances where the surgeon seems to find a very reasonable excuse for curetting the uterus when he removes the appendix; usually we find those are cases where the patient has missed a period and the abortion is thrown in. There is absolutely no excuse for curetting the uterus, because the woman has missed her period, if you are going to operate in the abdomen. I must emphasize the use of local anesthesia. The general anesthesia is more likely to cause an abortion than will opening the abdomen.

DR. McCREADY (Pittsburgh, Pa.): In making a diagnosis of acute appendicitis, there is one little diagnostic test that I make use of which I think is invaluable. When I am called to a patient suffering from severe pain in any part of the abdomen or chest I give a small dose of morphine ⅛ to 3/16 of a grain hypodermically, and then sit down by the side of my patient and watch its effect. After the first fifteen minutes I make frequent examinations. You will find that in from 25 to 35 minutes all reflex pain will be abolished, and if it is an acute attack of appendicitis the only pain and tenderness remaining will be over McBurney's point. One case I have in mind I was called to see about six o'clock in the morning. He was a big, strong man, and when within a half square of the house I could hear my patient moaning with pain. As I entered the room he was sitting on the side of the bed with both hands on the right side of his chest just below the clavicle. He said the pain was terrible. I gave him the morphine and in less than twenty minutes he referred all his pain to the abdomen; in 35 minutes the only point of pain and tenderness was over McBurney's point; in less than two hours I had him operated on; the appendix was ruptured, likely ruptured on the way to the hospital.

Bear this in mind; always remain with your patient, watching the effect of the morphine and until all reflexes are abolished, when you can complete your diagnosis.

Thank you, gentlemen, for this opportunity of being with you today.

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HEREDITY AND CANCER

The medical profession is in the process of a complete change of ideas with regard to the relation of heredity to cancer. The work which will form the basis of our ideas in the future has been done at the University of Chicago by Miss Maud Slye. She has presented the results of her work before numerous scientific and medical societies, and the conclusions were recently reviewed by Dr. H. Gideon Wells.[1]

Space does not permit even a brief review of the work done by Miss Slye; it covers a period of more than twenty years devoted to the intensive study of one problem, and represents the most comprehensive investigation in the realm of medical biology. So perfect is her technic with mice that she is able to keep these delicate laboratory animals into the period which represents "old age" for them; this is necessary in order to study the spontaneous development of cancer, and is an accomplishment which no other laboratory biologist has duplicated.

In brief, her work demonstrates beyond any question that cancer in mice is an hereditary recessive trait which can be made to appear and disappear at will by selective breeding. The only question which can be raised is whether the appearance of cancer in a human being is, biologically, the same phenomenon as it is in a mouse. To a biologist this is a foolish question, since biologic laws governing cellular behavior are the same in all animals.

Applying the demonstrated principles governing the appearance of cancer in mice, then, to human beings, we would recognize that the appearance of cancer in a person is due to two forces; (1) the cropping out of an inherited recessive character the time of whose appearance is determined by (b) some local irritant. It is not the cancer which is inherited, but the tendency for cells to grow in a malignant manner when conditions are suitable. This tendency for cells to react in the production of malignancy is a Mendelian recessive, while the normal and orderly growth is a dominant character. The recessive tendency may be overwhelmingly great and the cancer develop with very slight irritation, or the recessive tendency may be latent and never develop or develop only after prolonged irritation.

The important point is that there are human stocks who will not have cancer, and there are other stocks who are breeding true to their recessive heredity and who are going to develop cancer whenever conditions are favorable.

1. Radiology, July, 1924.

MEDICAL EXPERT TESTIMONY

An editorial in the Arizona Republican of July 15th, commenting on the anticipated marshalling of alienists in the Chicago murder trials, gives the viewpoint of the intelligent layman regarding medical expert testimony. It also represents, in a general way, the attitude of a majority of the medical profession. If the question of whether the courts should select medical experts in all criminal and civil cases requiring such testimony were submitted to the medical profession, it would be almost unanimously endorsed.

However, there are some features of such testimony which are usually overlooked. In the first place, medical men do not disagree on the witness stand any more than they do in private practice. Usually the point about which they testify is a very obscure one and the experts can only give an opinion. In Arizona there is a statute permitting the appointment of a commission of doctors to determine the extent of injuries in suits for personal damages; usually three men are appointed and very frequently they fail to agree. The editor once served Maricopa County as physician, in which capacity he, along with one or more other doctors, appointed by the court, would examine people suspected of being insane. Frequently we failed to agree, and the same condition undoubtedly prevails wherever this system is followed. It is undoubtedly true that an appreciable number of people are placed in state hospitals as mentally unbalanced and, after detailed study, found to be normal. This is so well known that it is almost the universal practice to have observation hospitals where people suspected of being insane can be studied. All this by way of explanation of the statement that the confusion arising from disagreeing experts will not be removed by having them appointed by the court, unless the court appoints only one person.

We have recently had presented in the pages of this journal[1] excellent argument that such a procedure as the selection of experts by the court would be unconstitutional in that it contravenes the right to an unbiased jury trial, and legislation to this end would not stand the test of scrutiny by the Supreme Court. However, the system is in force in Massachusetts, and the Arizona State Medical Association has instructed its Committee on Public Policy to seek the proper legislation to inaugurate the plan in Arizona.

In the Chicago case the statement that the alienists could not find evidence of "legal" insanity, but only of mental abnormality, illustrates a third point of difficulty in expert testimony. A person can be mentally unbalanced and abnormal from the standpoint of psychiatry, and still be legally sane. The law requires that a person must be unable to distinguish right from wrong or be unable to control his actions, before he is regarded as insane. An astute lawyer will endeavor to secure the testimony that his client is mentally abnormal, and, on the basis of this, try to make the jury believe that he could not control his actions.

The recent developments in the Chicago case suggest the ethical standards of legal practice in England more than those prevalent in the United States. In England, a lawyer who knows his client is guilty would not try to prove him "not guilty", but would admit his guilt and then present extenuating circumstances, if such existed. In this country, it seems to be considered perfectly ethical for a lawyer to seek a verdict of "not guilty" by any method available, even if his client is caught red-handed in the act of committing a crime. It is the involvement of the medical profession in these questionable procedures from which we seek relief.

1. Wylie, April, 1924.

PERSONALS AND NEWS

Dr. Willard Smith of Phoenix, after leaving the hospital and spending a few days in his office, left August 1st for a month at Iron Springs, after which he will begin a two months' tour of eastern clinics, including the College of Surgeons' meeting in New York in October.

Dr. John Wix Thomas of Phoenix left August 1st for southern California, where he will spend a month's vacation, visiting relatives and friends.

Dr. W. O. Sweek of Phoenix left the latter part of July for the Pacific Coast, his final objective being Portland, Ore. He will be gone until about September 1st, visiting clinics of San Francisco and the northwest.

Dr. Harlan P. Mills of Phoenix is spending his vacation in California, visiting relatives. He will return the last week in August.

Dr. H. L. Goss of Phoenix has been spending several weeks of the summer visiting relatives and medical clinics of Denver, Kansas City and St. Louis.

Dr. Frank J. Milloy of Phoenix is gradually recovering from the birth of his first son, this event occurring during the month of June, at the Sisters' Hospital, and we are informed by the doctor that this was the event of outstanding importance in medical circles of the southwest during the summer.

DR. NEFF MOVES TO LOS ANGELES

The many friends and professional associates of Dr. Mary Lawson Neff of Phoenix will be sorry to learn that she has decided to remain in Los Angeles, but will wish her every success in this larger field of work.

Dr. Neff is recognized throughout the southwest as a psychiatrist of outstanding ability. She was the consulting psychiatrist for the Medical Advisory Board of Maricopa County during the war, for the Veterans' Bureau of the Phoenix Subdistrict, and was in demand all over Arizona in consultation cases. She was also the most efficient and indefatigable worker for public health in the State Association and will be missed from their Committee on Public Health.

She will be located at the Hotel Trinity, in Los Angeles.

ARIZONA PREVENTORIUM

A notable contribution to the Preventorium Fund of the Arizona Antituberculosis Association was made by the family of Dr. E. Payne Palmer of Phoenix. A musical benefit was given by Mrs. Palmer and Miss Virginia Palmer, the proceeds amounting to several hundred dollars, which was donated to the Preventorium; then two of the young Palmer sons conducted a refreshment stand on North Central avenue for the benefit of the Preventorium, netting the sum of one hundred and sixty dollars. It is difficult to estimate whether the artistic or the commercial are the outstanding characteristics of the younger generation of this family.

BOOK REVIEW

THE SURGICAL CLINICS OF NORTH AMERICA, Volume 111, for the year 1923 consist of six volumes, averaging about 300 pages and over 100 illustrations each. Published bi-monthly, W. B. Saunders and Co., Philadelphia and London. Price, Cloth $16, Paper $12.

The February number, furnished by fourteen surgeons of Philadelphia, contains clinics on 48 cases. As usual, the clinic of Dr. John B. Deaver occupies first place. He presents eight cases, an ordinary afternoon's work, which he probably completed in about two and one-half hours. His case of recurrent acute intestinal obstruction will be of much interest to every surgeon who has had one of these troublesome cases that recurs repeatedly from adhesions and intestinal kinks. In connection with a case of suppurative appendicitis this master surgeon gives the sequellae of this disease in an interesting discussion received from the vantage point of his vast experience.

Those who have been working on Endocrinology will be interested in a series of cases presented by Dr. Frazier illustrating surgical problems in the management of pituitary disorders. He reviews symptoms, especially as related to the eye, the diagnosis, and advances recently made in the surgical treatment whereby operative mortality has been reduced from 17 percent to zero.

The April number is credited to seventeen New York surgeons. Passing a clinic of 40 pages by Albee on restoration of the inferior maxilla by grafts, we choose for report a case of hour-glass stomach with pyloric stenosis by a personal acquaintance, Dr. William A. Downes. The details of examination, pathology and operative findings are carefully discussed. The technic then consists of uniting the two pouches into the duodenum by means of pyloroplasty. Altogether it furnishes an interesting and instructive case.

The surgeons of San Francisco furnish the June number, but in the 25 or more names given we fail to see those of some of our old friends, men of wide reputation, whose work we look for with pleasure. A rare and interesting case of aneurysm of the common iliac artery is reported. The tumor was so large that it was diagnosed as of the left iliac vessels. Incision of muscles, fascia and

(Continued on page 400)

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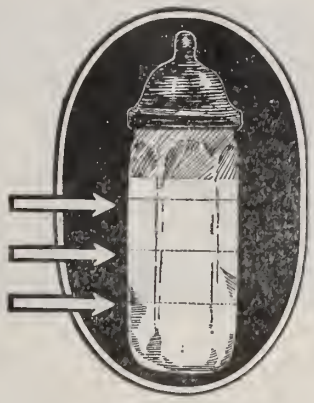
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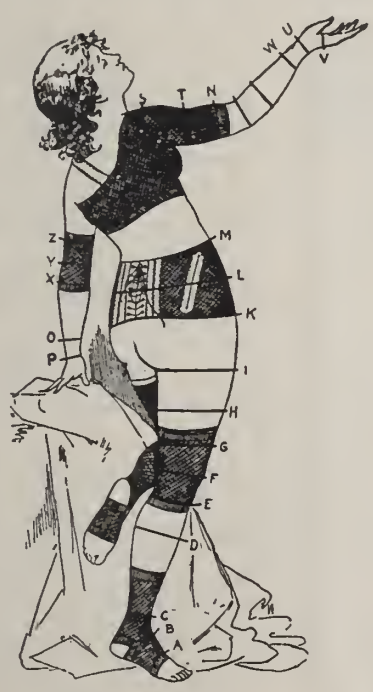
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(Continued from page 392)

lifting the peritoneum proved this to be an error. Operation on the right side disclosed the artery proximal to the tumor, where it was ligated with two muscle-fascia grafts. The patient recovered without pulse in the arteries of the right leg.

In August, urology holds a prominent position in the offerings of the Chicago surgeons. Pyelography is reviewed and illustrated by Kretschmer and tumors of the kidney detailed by Eisendrath, an indefatigable collaborator. Carl Beck gives a review of some European clinics and describes the method of local anesthesia of the splanchnic nerves for stomach operations. The limitations for use of novocain appear to be gradually extending as more surgeons become familiar with paravertebral anesthesia and such special methods as splanchnic block.

The Minneapolis-St. Paul surgeons furnish some interesting material in the October number. It is always interesting to look over those adjuncts and methods that another surgeon considers helpful to his technic. While the adoption of too many methods used by others might result in a conglomeration of fads, it nevertheless remains a truism that the good surgeon is always on the lookout for anything that may add to the comfort or safety of his patients. The surgeon seldom realizes the value of detail until he himself becomes a patient and undergoes an operation. Here he reaches the point where everything that makes for comfort is highly acceptable and a simple method of controlling hemorrhage is immensely important. This clinic volume contains a goodly number of these valuable suggestions.

We note also a series of cases on lesions of the esophagus that are outside the usual routine of common clinical cases, yet not so rare that they are seldom seen. Various disabilities of the knee joint are mentioned in several clinics and foot disability with an analysis of 781 cases is discussed in a paper more thoroughly than would be expected in a clinical demonstration. It goes into many details that are liable to be overlooked by most of us in everyday routine.

The December Clinics came from Kansas City. The group furnished by Hertzler reminds one of his books on surgery. They seem more free and off hand, less stereotyped in their delivery, more like the original Murphy clinic which was taken down by a stenographer in the operating room. He presents two cases of gut strangulation, one from femoral hernia and the other in connection with a Meckel's diverticulum. The former was handled by lateral anastomosis and removal of the two dead ends of gut connected with the fistula that had resulted from the strangulation and incision. The latter contains an unique feature in obliterating the septum of gut leading up to the umbilicus after a necrotic loop had been sutured outside the abdominal wound. Both cases illustrate the two-stage operation for strangulation.

Other clinics that are well illustrated are a series of cases on tuberculous salpingitis and several cases showing kidney conditions, calculi being especially well covered by Burns, who sounds the warning, often forgotten, that cases with obscure abdominal symptoms should receive thorough urologic study before operation is undertaken.

In the series of clinics are many that have refreshing features; in fact, the great value of the entire clinics lies in the fact that they refresh one's memory rather than that they teach new facts. However, not infrequently we find new points in diagnosis, new methods, new technic—something that the other fellows have done that we have not. Good surgeons are always glad to rub shoulders with one another. Good-fellowship aids in the absorption of some one else's viewpoint. E. B. R.

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VOLUME VIII SEPTEMBER, 1924 No. 9

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents—See Advertising Section Page 1

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ORIGINAL ARTICLES

HOSPITAL STANDARDIZATION FROM THE DOCTOR'S VIEWPOINT 401
A. C. Scott, M. D., F. A. C. S., Temple, Texas.

THE INFLUENCE OF HOSPITAL STANDARDIZATION UPON COMMUNITY WELFARE 404
F. P. Miller, M. D., F. A. C. S., El Paso, Texas.
(Discussion)

A CONSIDERATION OF GALLBLADDER SURGERY 408
Rea Smith, M. D., Los Angeles, California.
(Discussion)

FRACTURES 411
A. R. Hatcher, M. D., F. A. C. S., Wellington, Kansas.
(Discussion)

NERVOUS DISEASES AND THE GENERAL PRACTITIONER 417
Karl A. Meninger, M. D., Topeka, Kansas.
(Discussion)

DIETETIC INDISCRETIONS PRODUCING AND AFFECTING CARDIAC CONDITIONS 422
E. Avery Newton, M. D., F. A. C. P., Los Angeles, California.
(Discussion)

TRACHOMA 425
John McMullen, M. D., U. S. P. H. S., Washington, D. C.
(Discussion)

CONGENITAL SYPHILIS 428
Edw. R. Cox, M. D., Clifton, Arizona.
(Discussion)

THE PATHOLOGY OF PSYCHIC IMPOTENCE IN GONORRHEA 432
R. A. Hernandez, M. D., Tucson, Arizona.
(Discussion)

STUDIES ON THE PHYSIOLOGICAL ACTION OF THE RADIOACTIVE WATER OF HOT SPRINGS 435
M. F. Lautman, M. D., Hot Springs, Arkansas.

THE BLOOD PRESSURE AS RELATED TO TUBERCULOSIS 437
W. H. Cryer, M. D., Deming, N. M.

THE TENDENCY TOWARD FADDISM IN MEDICINE 440
Elliott C. Prentiss, M. S., M. D., El Paso, Texas.

THE DOCTOR AND THE PUBLIC 446
H. A. Ingalls, M. D., Roswell, New Mexico.

EDITORIAL

THE SOUTHWEST MEETING IN PHOENIX 448

BOOK REVIEWS AND NEWS 450-460

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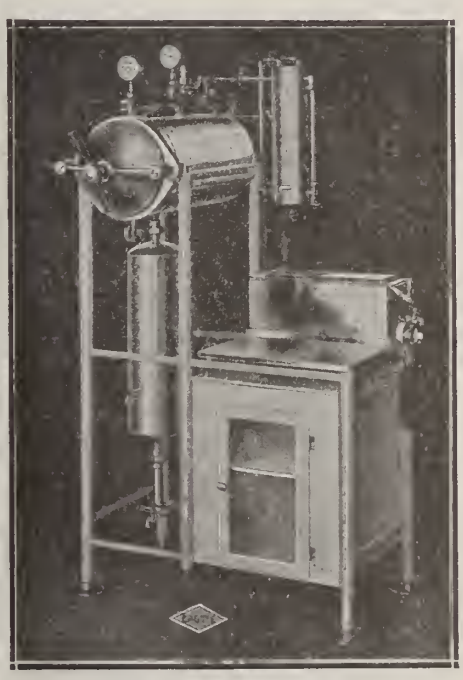
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HOSPITAL STANDARDIZATION FROM THE DOCTOR'S VIEWPOINT*

A. C. SCOTT, M. D., F. A. C. S., Temple, Texas.

In the beginning of the organization of a hospital, persons who have had a limited experience cannot visualize the needs of a hospital sufficiently in advance to more than provide for the bare necessity of furnishing shelter, food, medical and surgical supplies, with some sort of professional and nursing attendants, and, afterwards, the development of a hospital depends very greatly upon the objective which exists in the minds of those who become responsible for its conduct, and because of the fact that trustees, superintendents, doctors and nurses so frequently have different objectives, it often becomes impossible to co-ordinate the work of the various persons into a dependable, efficient unit.

Not uncommonly the one most responsible for the establishment of a hospital is someone who has sufficient money and is philanthropically inclined, but has no conception whatever regarding its working needs. As a result of the lack of this information, it is not uncommon for a hospital to be built and endowed by one person or a group of persons whose conception of a hospital is that of a nice looking building, containing a lot of bedrooms, a kitchen, a few nurses and perhaps a tile-floored operaitng room, with some nickel-plated furniture. To this conception is added the attendance of their favorite physicians and surgeons, who when brought together form a most incompatible group of associates.

Usually a board of trustees is selected the members of which are as unfamiliar with the needs of a hospital as an irrigation farmer is of a woolen factory, or as a mining engineer is of the rigging up of a sailing ship. The dilemma usually becomes apparent in the formation of plans and frequently shows itself more decidedly in the after development and management of the institution.

Naturally enough, since the trustees of a hospital are most often composed of those who have furnished the money for its construction, they are therefore most deeply concerned in the financial phase of its operation and development. Being unfamiliar with many of its real needs from a scientific standpoint, they are slow to accept any ideas, calling for expenditure of money, which they do not fully understand.

Hospital trustees who have not previously had a good deal of experience are governed in the selection of medical attendants for the hospital by the same personal influences which so often characterize the haphazard selection of a private physician, and the errors common to the selection of private physicians multiply the difficulties which are to be encountered in

(*Read before the New Mexico State Medical Society, Santa Fe, N. M., May 27, 1924.)

the organization of a hospital staff.

Because they are unable to secure the services of physicians who have ability, time and inclination to look after the business side of the hospital operation, they often select for its management a superintendent who has an equal difficulty in getting the viewpoint of the professional staff.

While the Catholic hospitals, which are managed by sisters, escape the usual difficulty attendant upon the selection of a superintendent, they may also fail to appreciate fully the viewpoint of the scientific staff, and consequently are sometimes slow to adopt progressive measures which are necessary to bring hospitals up to proper standards of efficiency.

It is well that every hospital governing board should, as early as possible, make an outline of its purposes and all things necessary for their attainment. They should understand from the beginning that brick and mortar may make a building, but in no sense do they make a hospital.

They should also understand that when a group of physicians, whose personal interests are widely separated, are brought together in an organization their work cannot be suddenly harmonized, and it requires years of patient elimination, readjustment and reconstruction, free from personal interests, to build up a staff sufficiently co-ordinated to attain real efficiency.

Hospital governing boards and professional staff alike should grasp the one big idea, that a hospital is not established purely for the purpose of making money for anyone, but that its real purpose is to serve humanity to the highest degree possible in relieving suffering, restoring health and saving life, and this purpose should never be lost sight of for one moment by anyone connected with the operation of a hospital. Unless this purpose is kept constantly in mind no hospital is worthy of the trust which causes people to enter its doors and place their lives in its care.

The selection of a hospital staff is probably the most important duty that ever confronts a governing board, and to succeed with it a board should first free itself from personal preferences and make selections according to the integrity, scientific attainments and adaptability of the men, and after they are selected they should be entrusted with everything pertaining to the government of the staff and its scientific work. Without the unstinted support and confidence of the governing board, a scientific staff cannot function efficiently. It will be impossible for the staff to attain the most desirable standard of work if it is handicapped by the admission of all physicians in the community, whose patronage is being sought by the governing board.

What patients desire most when they enter a hospital is safety, and it is the duty of every hospital board and scientific staff to see that no stone is left unturned to secure the greatest degree of safety known to the science and art of medicine. To do this the staff must first of all be composed of men who are inherently honest, unselfish, humane, full of energy and possess a keen desire for scientific advancement. Each individual should be willing to relegate his personal interests to a secondary place for the common good of the institution and the safety of every patient for whom he may become either partially or wholly responsible, and there is some serious question in my mind of the propriety of retaining on a hospital staff any physician or surgeon who does not measure up to this sort of standard.

On the other hand, we may feel reasonably sure that any hospital whose scientific staff does measure up to these essential requirements will bring all details of its work up to a standard which will warrant the American College of Surgeons in accepting it and justify the people of the community in turning their lives and those of their dear ones over to it.

A staff which functions properly

will meet at stated intervals, not less than once or twice a month, for the purpose of reviewing its work, thus eliminating errors, obtaining closer co-ordination and, by discussion of the patients treated, stimulate study of the kind of work they are undertaking to do. Not only will they do this, but they will encourage their members to take an active part in medical organizations, visit other hospitals and clinics and do everything possible to advance their scientific knowledge.

No matter how high class the staff may be, nor how well co-ordinated, it is impossible for a professional staff to reach its maximum efficiency without a well-organized, carefully trained corps of nurses, and to secure the high type of women desirable for this work the hospital must make ample provision for their personal well-being, thorough instruction and training. The dependability of a hospital is measured greatly by the character of the women constituting its nursing staff and their ideals of service.

In order that the nurses may reach their highest efficiency care should be given also to their environment, associations, recreation and, in fact, everything which tends to inspire them to the high purposes of their calling.

Sometimes the governing board looks upon the business office as the heart of the hospital. It is not unusual for the surgeons to look upon the operating room as the heart of the hospital, but the real heart of a hospital is found in the record room.

Without case records, no hospital should flatter itself with the idea that it is a safe institution. Sometimes we find objections made to the minimum standard of the American College of Surgeons, upon the ground that they require exact records to be made of all patients, but any reasoning person should readily understand that it is as essential for a hospital to keep careful records of its patients as it is for a bank to record its deposits and withdrawals; even more so, because with the former an error may mean the loss of life, whereas with the latter it may only mean a loss of money or property.

It is impossible for any physician who does much work to carry in his head all the symptoms and physical and laboratory findings of every case coming under his observation, and every time he forgets anything essential to a diagnosis or safe treatment, he commits a blunder, a blunder which may cost the patient his life or at any rate an opportunity to get well.

In the working out of the final diagnosis, the items to be considered are often as numerous as the figures in a geometrical problem and no one but a mathematical wizard would attempt to work an important problem altogether by memory. In a hospital the cost of an error is too great to take a chance when a written record may eliminate it.

The keeping of clinical records in a hospital protects the hospital against any unjust criticism, serves to the advantage of its medical staff in calculating the comparative results of the various kinds of treatment adopted and gives its governing board a dependable lot of information concerning the successes and failures of the members of its staff. Moreover, clinical records in a hospital not only add to the safety of every patient who enters, but preserve information which may be of inestimable value to the patient or some of his descendants in the treatment of some other ailment at a later date.

The keeping of clinical records should never be delegated to a nurse or other person than a physician, and while it is perfectly safe for them to do the writing, it is only possible in the attainment of accuracy for the records to be written by a doctor or dictated in detail by him.

A proper appreciation of case records on the part of the attenidng physicians is absolutely essential for their dependability and usefulness.

It costs the time and the labor of the physisian and it costs the hospital money for a record clerk to check up,

file and tabulate records, but in the end it adds tremendously to the service and efficiency of the institution.

To quote Dr. M. T. MacEachern of the American College of Surgeons, "A hospital without records is like a clock without hands, still running, but not giving out any information."

Every hospital should carefully record and classify the diseases treated, giving methods of treatment and results, in order that reliable deductions may be made at a later date for the benefit of all those patients who may come after, and, for the same purpose, when fatalities occur, autopsies should be held and a careful record made of every pathological condition.

Records should cover first of all the patient's family history; then the patient's preliminary history and a history which inquires into the condition of every organ in the body; then the result of a systematic examination should always be recorded in such a way as to eliminate errors, or at least reduce them to a minimum. Every case should have a tentative diagnosis recorded before operation and a final, or corrected, diagnosis after operation.

No record of a surgical case is complete without a detailed record of the findings during operation, the technic of the operation, and both the immediate and remote results.

The requirement of the American College of Surgeons, that no member of a standard hospital staff shall indulge in splitting fees or paying commission for patients referred to him, has received considerable opposition from a few hospitals and their attending specialists. This is to be regretted, for everyone knows that wherever fee splitting has been practiced the matter of referring patients to a specialist has become purely commercial and there has been no way to prevent the tendency to send patients to the specialist who was least competent if he paid the highest commission for them.

Persons taken ill while in strange cities sometimes require the services of a physician and make inquiry of a hotel clerk as to a safe physician to be called. It is easy to conceive the plight of a patient with an acute intestinal obstruction under the treatment of a chiropractor called in by a hotel clerk who would receive for his kindness (?) a commission of twenty-five or fifty per cent of a chiro's charges.

Will anyone contend for a moment that a hotel clerk should have a higher sense of honor than a real physician when referring sick people who trust him for safe guidance?

The American College of Surgeons is only endeavoring to preserve the honor and integrity of the medical profession and the hospitals patronized by them, by discouraging the dangerous practice of paying or accepting commissions for patients referred to a specialist.

We realize, of course, that at the beginning of the organization of a hospital it is not possible to start off with perfection, but, with careful thought and persistent effort, every hospital can be brought to a safe and sane standard, which will meet the requirements of the American College of Surgeons.

THE INFLUENCE OF HOSPITAL STANDARDIZATION UPON COMMUNITY WELFARE*

F. P. MILLER, M. D., F. A. C. S., El Paso, Texas.

The community is coming to an understanding of the work and problems of hospitals through a broad perspective. It now knows and realizes that over two and one-half billion dollars are invested in buildings and equipment, and that it must spend annually over seven hundred and fifty million dollars for their maintenance. Over ten million men, women and children will be patients in hospitals during the current year. It is

(*Read before the New Mexico State Medical Society, Santa Fe, N. M., May 27, 1924.)

being told annually, on National Hospital Day, that the employees connected with the hospitals exceed more than double those engaged in the automobile industry.

The resources for dealing with the sick and injured are of vital interest to the people. It demands to know what the hospitals do for their patients; the part the hospital plays in the life of the average family, and the relation of its activities to the community welfare.

One of the great emergencies which disturbs the life of the average family is sickness. Excluding minor diseases, not causing loss of time or incapacity, we are told that from two to three percent of our population is actually ill at any given period of time. In the average city, ten percent of those above mentioned as ill are cared for in the hospitals. Cleveland, Ohio, estimates that sickness and deaths from communicable diseases cost that city twenty-five million dollars per year.

The public may well ask, "What manner of industry is this in which the human and financial sides inventory such figures?"

The medical and hospital professions may well study the viewpoint of the average citizen. What is the primary reason for the utilization of hospital facilities in the case of illness? Is it not the sincere desire of the individual that his loved ones shall have the best services of the medical and nursing professions and the maximum resources in equipment that this century's medical science can muster? Where can they find this combination of advantages? People no longer say they are "afraid of the hospital." The hospitals meeting the "Minimum Standard," and by this phrase I mean the Minimum Standard of the American College of Surgeons, are now being used as a reliable index of the community's standing in the scale of civilization. A patient in the selection of a hospital will depend upon many varied factors. Often the selection is left to the advice of a physician, often it is a consideration of finances, often a matter of custom or prejudices. In other instances the selection is based upon information or misinformation regarding the service of the hospital.

The announcement of the American College of Surgeons that they were going to set a "Minimum Standard" for hospitals came as a knock of progress at the door of the public. At first it startled the set feelings of established institutions, but all have awakened and gone forward with increased efficiency.

The public has said "as one candle lights another nor grows less, so nobleness enkindleth nobleness." The raising of the standard of one hospital has raised the standards of all other hospitals. Realizing the value of the plan of standardization, each community began to study hospitals and their relative efficiency. It has watched the growth of this movement with interest, until now it knows that eighty-six percent of the hospitals in the United States and Canada, of one hundred beds and over, have met this standard. In the survey of nine hundred and sixteen hospitals of fifty beds and over, forty-six percent have met the standard.

The "Minimum Standard" has met every argument of reason and logic. Its only enemies are apathy, indifference, ignorance and selfishness. The public will be patient and suffer long with these enemies, but in time it will put its mark of approval upon standardized hospitals. It realizes that this movement means justice to the patient; that it is due the patient to have an accurate history taken; to have all the facts relative to his case collected and recorded; to have these facts filtered, analyzed and focused upon; and then, these facts should be faced honestly by all who seek a cure.

The material handled in a hospital is the most precious and valuable in the world—Human Life. Slipshod methods when dealing with sickness and injury are criminal. Those who scoff and deride this program for the inherent rights of the patient do not love justice, truth and equity. The

interest of the people in the Minimum Standard of the American College of Surgeons can be shown in the articles in the lay magazines. I would call your attention to the articles, "Better Hospitals for Everybody," in World's Work for June, 1920, and the "New Control of Surgeons" in Harper's Magazine for February, 1924.

When the community reads from the pen of a layman the facts that disclose "fee splitting," you may rest assured that it understands this "cancer" in medical practice. It knows that the "Standardized Hospital program" denounces and condemns this evil and that it is synonymous with incompetent and unnecessary surgery. The public will hold that the "fee splitters' " reward is really a "theft."

The standardization program has been of decided benefit to the community welfare. "The community may confidently look forward to better things, when the hospitals will be institutions of service from which selfish interest and careless methods have been abolished, and to which the community may look for efficient and considerate treatment, confidently expecting and receiving the utmost that the medical profession is capable of giving."

The people would have you write over the hospital door this motto, "Do not to others what thou wouldst not wish should be done to thyself."

DISCUSSION

DR. A. R. HATCHER (Wellington, Kans.): Naturally, I am in very hearty accord with everything that Drs. Scott and Miller have said relative to hospital standardization. Can you imagine the plight of a sick person going into a hospital only a few years ago, and in some as they are conducted now in a building containing rooms, bed and operating room without facilities of an x-ray laboratory and clinical pathological laboratory, and all the essential things that we know must be used if we render the proper service to that patient? Can you imagine any opposition that could be made to the program as it has been conducted during the past few years in the efforts of the American College of Surgeons to standardize hospitals for the purpose of rendering better service?

With organized staffs holding staff meetings at which papers are given, and an analysis made of the service during the past month on every case that has been treated in the hospital, discussions as to the various findings, etc., we are enabled to better the service rendered the public, and personally, I do not see how any of us can think about doing hospital practice without coming up to the minimum standardization as it is outlined.

At the present time 46 per cent of the hospitals of over 50 beds have met the minimum standardization and a great many more of the larger hopsitals have also done so. I think there is absolutely no argument from the patient's side, and since we are the doctors, there should be no argument from our side.

DR. E. C. FISHBAUGH (Los Angeles, Cal.): As you all know, we have only recently had any standardized hospitals in Los Angeles. Up to about four years ago, there was no standardization of any of the hospitals, and our plight was a very serious one. We were working side by side with osteopaths, chiropractors and the like, and there were no reliable laboratories in any hospital. It was a very serious condition.

At the present time, however, every hospital has its own staff, and many of them, I believe, are accredited by the American College of Surgeons. Of course we had more or less difficulty in the selection of staffs. In a city the size of Los Angeles, there were many men just as good as other men and to pick one man as chief of the surgical staff, another as chief of the medical staff, and so on, caused certain difficulties. In the hospital in which I am particularly interested, each section of the staff elects a chairman to preside over that section for one year. In this way we have obviated many difficulties and it has taken away the little odium that otherwise might have been created.

Most of the hospitals in Los Angeles are now standardized, have well equipped laboratories and x-ray equipment, and are running along smoothly. I think each one of the larger hospitals has a trained historian in charge of the histories.. Many of the histories are dictated to stenographers and all records are kept complete. This has proven most satisfactory and has made better feeling among the doctors. There is greater co-operation and every case is studied more carefully. We have our regular monthly staff meetings when interesting and difficult cases are discussed openly. We have had only the kindest feeling among the doctors of the staff and each one is co-operating to make the method a success.

DR. K. D. LYNCH (El Paso, Texas): I think the subject is very well divided up into the standardization of hospitals from the doctor's standpoint, and then from the standpoint of the community.

Any of you who have been through an interneship or residentship as surgeon in a

well established hospital, such as we have in the East, will appreciate Dr. Scott's paper and what standardization of hospitals means to the doctor. The hospital from which I came was standardized long before we had any such thing as standardized hospitals as recognized by the American College of Surgeons. I know because I wrote a great many of the records in that hospital, both operative, historical and otherwise.

We always have a compromise in life—life itself at best is a compromise—and we are not going to have anything perfect in this world I suppose, and we are not going to have it in hospitals either. There is always going to be a certain amount of jealousy, heartburn, envy and other disagreeable emotions manifested in the selection of hospital staffs. The Board of Managers are the people who hold the money-bags and often times they are going to have a great deal to say in the selection of a staff. They have their personal and professional prejudices by which they will bar out certain men. Nevertheless, there can be nothing said against the standardization of the hospital from the doctor's standpoint, and that is the ideal for which we all want to work. Leaving all other considerations aside, whether a man be an internist, or whether he be a surgeon, he can certainly do his work more efficiently, more perfectly, if he has that co-operation that exists in standardized institutions. You cannot do good operating without good assistance from the people who handle the details of the work, any more than you can do good medical work if you do not have people who can carry out efficiently exactly the orders you give, and I am certainly heartily in favor of this work of the American College of Surgeons. I do not think they have done all that can be done, but they are trying to do the best they can.

From the standpoint of the community, any of us who have watched the work Dr. Miller has done in El Paso cannot help but be very proud of it. Those of us who have not directly had the opportunity to help him at least have been back of him and have helped him indirectly. We have a fine standardized hospital and there is no question but that the standardized hospital has raised the standard of the other hospitals. We do not have so many abortions or so much other rotten work done now that the doctors are openly criticised for doing things that are unnecessary. The only way to weed these thinks out, as they should be weeded out, is by standardization along these lines.

DR. A. C. SCOTT (Temple, Texas, closing): I said about all I know regarding hospital standardization in my paper but, with reference to the public's side, as presented by Dr. Miller, I may add this, that if the public only knew what the majority of doctors know about the stortcomings of our hospitals, they would be very wary in regard to some of them; if they only knew the difference in the scientific efforts and the dependability of a hospital, which has been brought up to a high standard, as compared with the claims of the impostors, who are located in almost every important office building in this country; if they only knew the difference in the way of going about examining patients and recording the findings; if they only knew the difference in the way the investigations are made in the laboratories, as compared with the hit and miss methods of these impostors, there would not be so many impostors.

The time has come when we must raise our own personal standard, the same as we are raising the standards of the hospital. We must stand together as one man, because I tell you the medical profession is being assailed from one end of this land to the other and the inroads are not appreciated by the medical profession. I wonder how many men here have read the report of the article which came out in the Literary Digest covering a survey of something like six or seven thousand laymen. The opinion of these laymen was asked in regard to their belief in the regular medical profession—the regular medical profession as represented by our doctors and hospitals—and that survey disclosed the fact that only about nine per cent of the people consulted in regard to the relative merits of the regular medical profession and the various cults, had not at some time shown a weakness and sufficient lack of confidence in the medical profession to consult some osteopath, some chiropractor, some christian scientist, or faith healer of some kind. Only about nine percent did not indulge in anything of that sort. I am sure a survey of this country would not make a showing of that kind, but those people had been concentrating in Illinois, and the result might be the same if they concentrated in Santa Fe, in El Paso, in Clovis, or any other part of the Southwest. I do not know whether you people took much interest in the fight when your Legislature passed a bill giving a special board of examiners to the chiropractors. We found one of the chief arguments they put to the public was that thirty-six states in the Union had recognized them by board and given them their own board of examiners. Think of it, thirty-six states out of this Union have so far degenerated in the estimate of the medical profession that they have recognized these cults and the most unfortunate feature of it is that in those states where they have gotten a hold of this kind it will be a long, long day before the laws are changed.

So, I repeat, the time has come when we should raise not only the standards of our hospitals as high as we can, but also raise our own personal standards as high as we can make them, and then stand together as a man for the medical profession and its scientific attainments.

DR. F. P. MILLER (El Paso, Texas, closing): I would not have you misunderstand

that the program of standardization is ideal or completed, as it is far from it, but what has been done is a step in the right direction. No movement has been put forward for the benefit of the patient that has been as far reaching in its results as this program of standardization.

Large business concerns had an important hand in this work and the Carnegie Foundation has contributed liberally in money every year for carrying it on. They feel well repaid for it and the limit is by no means reached.

No institution that I know of that has met this program fairly and squarely has seen any reason to retract, and I must say the growth of the movement has been marvellous. When we first started out, invariably the first question asked would be, "What is this going to cost us?" You could talk all you wanted to about the great benefits to the patient and the hospital and the community, but it always came right back to the first question, "What is it going to cost?" After awhile we met this with a nice little phrase—"It is going to cost effort and time, but not much money"—and really it does not cost very much money, and for the good that has been accomplished and the benefits derived, the cost has been negligible.

A CONSIDERATION OF GALLBLADDER SURGERY*

REA SMITH, M. D., Los Angeles, California.

The choice of operation in the surgery of the gallbladder furnishes an unfailing subject for controversy depending upon the personal experiences of individual surgeons. I am reading this paper for the discussion which I hope will be brought out.

During the last ten years in gallbladder surgery, the swing of the pendulum has been wide in each direction, from the center of conservative and reasonable treatment of infection, or the results of infection (gallstones) of the gallbladder. Ten years ago in the larger clinics, where the policy of gallbladder surgery is moulded, the cases ran 80 per cent drainage and 20 per cent removal. Because of a failure of symptomatic cure in between 5 and 10 per cent of the patients treated by drainage for all types of gallbladder disease the pendulum has swung back, so that three years ago in the same clinics the proportion of removal was ninety and the drainage ten. Removal of the infected gallbladder has undoubtedly cleared up the symptoms for which the patient was operated upon in a larger per cent of cases than the simple drainage.

In the last two or three years a new type of surgery of the biliary tract has come into prominence, that of common duct obstruction without stone, and without new growth. This difficulty following cholecystectomy has necessitated a secondary operation, which has proven very difficult of performance, and to have a very high mortality. In all of these cases that I have had an opportunity of studying, the foramen of Winslow has been closed. The lumen of the common duct has been obliterated in more or less its entire length by a secondary contraction of the inflammatory exudate surrounding it. In view of the fact that the removal of the gallbladder is likely to be followed by a complication so serious that it necessitates a life-saving operation, while the secondary operation for drainage is simple, and not attended with a high mortality, the question arises, whether or not more care in the selection might not be used in those cases to be drained and those to be removed; or perhaps a change in technic in the gallbladder removal, which would prevent the loss of the normal support of the common duct and the collapse of the foramen of Winslow, and so hold the common duct out of the lake of plastic lymph that collects in the fossa between the right kidney and vertebral column so that this obstruction would not occur.

You are all familiar with the steps in the ordinary technic in the gallbladder removal, whether done from above or below. The cystic duct is isolated, ligated and dropped back. The cystic artery, with its surrounding tissue, is ligated and dropped back. The gallbladder is removed

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from its attachments to the liver and the raw surface covered over. It occurs to me that the isolation and the dropping back of the cystic duct takes away the normal support of the common duct, and allows the common duct to lie slack against the posterior peritoneum in the edge of the lesser omentum. The common duct is, therefore, lying in more or less of a pool of plastic lymph and is surrounded by a thick membrane, which slowly contracts until the lumen of the duct becomes partially or wholly obliterated. This process is a slow one and our bad results do not become urgently manifest for a period of from several months to two or three years, so that the benefit by a change of technic must of necessity be very hard to prove. However, in face of the fact that common duct surgery after cholecystectomy is becoming more and more necessary, the constant finding of the inflammatory obliteration of the duct adherent to the posterior parietal peritoneum is to my mind justification for an attempt to leave the support of the common duct undisturbed in the removal of the gallbladder. In many cases it is a very simple procedure to cut the peritoneum of the gallbladder parallel to its attachment to the liver on either side, and from above downward peal out the gallbladder mucous membrane to the cystic duct. The cystic duct is then ligated, without isolating it from its surrounding tissue, below the point of ligation, so that the stump of the cystic duct has the same support through its attachment to the liver by the tissue intervening, that it had from the gallbladder attachment to the liver. This support can be regulated by the ligatures or sutures between the stump of the duct and the liver. In cases in which the wall of the gallbladder is so thickened that it cannot be peeled from the liver in the manner described above, a peritoneal cuff is made from the lower anterior surface of the gallbladder continuous with the peritoneum of the cystic duct, and this cuff is stitched to the denuded surface of the liver. Either one of these procedures does not lengthen the time of the gallbladder removal, nor add to its danger, and, except in the short, fat patient, with deep contracted gallbladder, is of easy performance.

It seems to me that three distinct elements enter into the problem of selection of operation. They may be alone or in any combination. Usually all three are present in the same case. They are:

(1) Mechanical obstruction of biliary passages;

(2) Infection of gallbladder walls;

(3) Infection of liver ducts.

The mechanical obstruction unaccompanied by active infection, of course, is simple, because it must be relieved mechanically, and the operator chooses the way that is easiest for him to do.

No one will contend that the grossly infected gallbladder wall should be left under any circumstances that would permit of its removal.

In the presence of the third condition, I think that you will all agree that whatever is done, drainage of the liver ducts must be a part of the procedure.

This sounds very simple if these conditions would occur singly, but in the nature of the development of gallbladder disease, it is almost impossible to have a gallbladder condition demanding operation which which does not have a combination of at least two of the three elements.

McArthur and Lobingier have reiterated for years the fact that the diseased gallbladder is only a small part of the general infection of the biliary tracts, and that as a routine operation (if a routine operation is to be used), one that drains the bile ducts will effect a cure in a larger percentage of cases than one in which drainage is not considered. I am sure that they are right in this, and I am also sure that many different surgical shifts may be used to accomplish a

removal of the infected gallbladder wall and drain at the same time, so that it will not be necessary to make a flat choice between cholecystectomy and cholecystotomy.

Why should we try to decide whether cholecystectomy or cholecystotomy should be done in gallbladder disease? In all other fields of surgery we use surgical judgment to determine our type of operation, depending upon symptomatology, pathology present, and condition of the patient. We would not attempt to say that all cancers of the stomach should be removed, or that all cancers of the stomach should have gastroenterostomy. We do what we can to relieve the individual patient of the symptoms which necessitated the operation, and I think that it is just as impossible to do gallbladder surgery by rule as it would be to do all surgery by rule. The judgment of the operator must determine his procedure and a great many elements not mentioned in this paper must enter into his consideration of each case in making his choice. We know what we would like to do, but many times the condition for which we operate is not relieved because we attempt in each case to do the routine ideal thing, instead of the expedient thing for the patient.

If I may have a moment more, in closing, I should like to mention a change in methods of separating the gallbladder from the liver that not only seems to make the removal technically much easier, but also leaves the liver surface smooth, avoiding the necessity of any sewing to cover denuded surfaces. I am in a quandary whether to call it the hydraulic method or the method of infiltration dissection; either describes it. A 10 cc. syringe full of salt solution is injected between the gallbladder and the liver under the reflexion of the peritoneum, which immediately balloons. Upon dividing the peritoneum, the gallbladder is found to be separated entirely from the liver, except for the peritoneum on either side, which is divided without oozing. The solution under tension seems to separate the two structures in the normal plane that a knife or blunt dissection will not follow, and it has been a great surprise to me to see how easily the old gallbladders adherent from chronic or repeated attacks of inflammation remove themselves with the judicious use of a little fluid.

DISCUSSION

DR. J. F. PERCY, Los Angeles:—More of us who have done much work in this northwest corner of the abdomen are frequently appalled on reopening the abdomen subsequently, at the great number of adhesions that have resulted from the previous operation. This creates a serious situation, not only for the patient, but for the surgeon as well.

I merely arise to emphasize two points that Dr. Smith has brought out in his paper, for the reason that I am familiar with his work and can substantiate the excellence of the technic that he has mentioned here. None of us care to enter the gall bladder region the second time following the usual methods of operating there, and many of them have to be gone over the second time.

The first point is the method of separating the gall bladder without interfering with the normal attachments of the cystic duct. This prevents, as was so well pointed out by the essayist, the common duct from slipping back into the pool of plastic lymph, which soon becomes organized and destroys the common duct. And a patient without a common duct is certainly in an unenviable situation.

The second point is the method of separating the gall bladder along the planes of its natural cleavage by the hypodermic injection of fluids. As worked out by Dr. Smith, it is an ideal method of removing the gall bladder, and so simple as to be almost beyond belief until one has seen it demonstrated, and when we consider that the common duct is not interfered with, we cannot but appreciate that a real technical advance has been made in the surgery of this region of the abdomen.

DR. GEO. E. GOODRICH, Phoenix:—I was very much interested in Dr. Smith's paper. I would like to ask for a more detailed account of his technic of separation of the gall bladder with fluid.

DR. SMITH:—Pardon me, I did not hear the question.

DR. GOODRICH:—Would you explain your method of removal of the gall bladder after the fluid has freed it from the liver bed?

DR. W. O. SWEEK, Phoenix:—I was very interested in Dr. Smith's method of removing the gall bladder. Ten years ago I noticed how easily this could be done under local anesthesia and will say that it is the most desirable method of removing the gall bladder that can be devised. I have been doing

it in this manner for a number of years, and it shortens the time of the operation and lets the operator work in a bloodless field.

In regard to the trouble that the patients have with the common bile duct and cystic duct after cholecystotomy. I first noticed this in the postmortem room where I made careful dissections of every case that had had a previous operation around the gall bladder.

Enough of the gall-bladder should, in all cases be left to attach a drain tube to. I cut off the major portion of the gall-bladder; put a tube in the lower part, sew it in place with number one catgut and remove it a few days later. This leaves the anatomical supports that normally help to hold the gall-bladder in position.

The very thorough and careful removal of the gall-bladder and part of the cystic duct with a thorough exploration of the common duct is so difficult in a number of cases, that only the most skillful surgeons can do it. It is this exploration and destruction of ligaments that brings about the condition described by Dr. Smith. This probably explains why the surgeon that is not so thorough does the best gall-bladder work.

DR. GEORGE A. BRIIDGE (Bisbee): I was also very much interested in Dr. Smith's paper and wish to state that I have had exactly the same experience as Dr. Sweek. I have left practically the whole cystic duct. Whether it was cowardice or not, I don't know but when I got down to the gall-bladder and beyond the pathological condition, I thought it was time to stop rather than to push on further and get a bad hemorrhage or get too near and injure the common duct. I also wanted to ask one question of Dr. Smith. Two years ago, when I went back to New York, I went to St. Luke's Hospital and, while talking to one of the attending surgeons, I asked him what he was doing in drainage of gall-bladders. He told me that the last four gall-bladders he had been trying an experiment. He had been closing the abdomen tight, without drainage. Last year, when I went back, I asked him the same question. He stated that he had tried this experiment in fifteen cases, having to reopen two of them and with those cases he had to reopen, he had such a serious and protracted convalescence that at the present time he was draining every gall-bladder case. I simply wanted to ask Dr. Smith what his method was as to drainage.

(NOTE: The corrected notes of Dr. Smith's closing discussion were not received up to time of publication.)

FRACTURES*

A. R. HATCHER, M. D.,F. A. C. S., Wellington, Kans.

The subject of fractures is a large one and impossible to cover satisfactorily in a paper of this type. I only hope to discuss the subject in a general way.

They are common injuries, usually demanding immediate attention by the first medical man available and naturally many are seen by all of us.

It has become more generally recognized that a fracture is not alone a lesion of bone, but may also be associated with injury to the soft parts, including skin, muscles, blood vessels, nerves, as well as to the viscera protected by bony structures. We should look upon a fracture as a damage done to a complicated mechanism and the conception should cause the surgeon to be influenced in the management of the case. Our thought should be to aid in restoring the injured part functionally to the position the individual belonged industrially before the accident.

By the previous statements we recognize the grave importance to the patient and the unusual responsibility to the surgeon. Since we are encountered by two important phases every detail must be looked after in care of such injuries.

At this time I would like to emphasize the importance of a complete and carefully kept record of every fracture. There is no class of patients where a carefully kept record is so essential. This history should be taken as a routine like all other examination of cases, and include carefully all the history of the injury which was responsible for the fracture. The patient will appreciate the interest you take in him and you immediately increase his confidence in your work. You will often gather information that will be of value to you in your treatment which has a bearing on the fracture. It is preferable

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to possess the whole truth before assuming the responsibility of a case than to make excuses afterwards. Suppose he is suffering from leukemia, anemia of the pernicious type or is a case of lues, you will perhaps unearth these facts and gather them into your data. Keep a follow up on all dressings, radiographs, physical findings, history and laboratory work. This will be valuable to you as a guide in diabetes, in crippled kidneys, and many other constitutional disturbances. Each case of fracture should have a case record of which you would be proud in any court of appeal. If accurate records were so made in all cases of fractures and the work so done 98 per cent of damage suits would be averted and many doctors would not so dislike the treatment of fractures.

In State Medical Societies maintaining their own legal defense it is estimated that fractures constitute from 65 to 70 per cent of all surgical claims. Now, why should fractures so often be the basis of damage suits?

First, fracture treatment is taken under less favorable surroundings than any other surgery. In the State of Iowa where these statistics were gathered, 75 per cent of these damage suits were treated at home. Usually in homes surroundings are not good and the patient has poor supervision and care.

Second, the conduct of the patient determines the result in many cases, as when they voluntarily remove dressings.

Third, ofttimes patients compare their results with a friend or acquaintance with out taking into consideration the facts and conditions in the case.

Fourth, the patient's knowledge of what was done in other surgical cases is very limited. He views the mechanics, disagrees with his physician and usually encouraged by his associates and an unfriendly physician his mind is poisoned.

Fifth, the surgeon should guard himself against promising the patient he will have as good an arm or leg as he had before he had the injury. The patient may believe it and hold him to strict accountability. Every fracture case should be x-rayed and if the patient is to be treated outside the hospital a consultant should see the patient with him.

Referring to the promises to a patient; one of the important things is to inspire confidence in the patient. Sometimes the doctor treats the fracture, puts it up and proceeds to forget it. Instead of saying, "Here is the situation. This bone heals slower than this bone," or, "It is more difficult to get this bone in line than this one," or, "I will have to keep you in bed twelve, fourteen or sixteen weeks instead of three weeks," or, "If the bone is not fixed end to end it is going to do just as well as though in perfect apposition"; just talk to the patient and prepare him for just what he is to expect. Don't say, "Oh yes, inside of six weeks I will have you up with this thigh," or, "In a couple of months I will have you at work with this fractured tibia," because nothing of the kind is true.

We know ordinarily a finger requires from three to four weeks to heal and yet some men will take down a fracture of the femur in five weeks and allow the patient to begin weight bearing. We know that if fracture occurs it takes a certain length of time for healing to take place even if the fragments are in perfect apposition; that there is going to be a certain amount of absorption; after the period of absorption Nature takes away a lot of debris; then she has to fill in the skeleton work with new callus, she has to build that all up. These are only comparisons of what can be said about various types of fractures dependent upon their location.

X-ray is indispensable in the treatment of fractures, but not to the extent that it should eliminate a careful physical examination of the injured part which would not be revealed by the x-ray. Every fracture should be x-rayed at least in two planes, or, stereoscopic radiographs

should be made. A plate made in one position is ofttimes misleading.

The x-ray is our most valuable auxiliary—not the machine but the intelligence of the interpreter. X-rays should be taken before the fracture is reduced and another to see the result of the reduction and others as often as necessary for the protection of both the patient and yourself. Record all dates when dressings are changed, radiographs made and treat every fracture with the precision of expecting to appear in court the next day.

Do not expect to see a reparative process in a radiograph in children before the end of two weeks and usually first seen in adults in about four weeks, reaching its maximum in six weeks. If at the end of that time there is no appearance of calcification it is frequently due to direct violent trauma to the bone or the patient may have lues and a Wassermann should be made.

Now, as to the two general types of treatment for fractures, the closed and open methods. I believe in conservatism and think that many fractures are submitted to the open treatment unnecessarily and also believe that the pendulum is swinging to the side of the closed methods more generally than has been practiced in the past ten years. I do not wish to convey the idea there is no indication for the open methods of treatment of fractures but wish to be understood that with sufficient knowledge of anatomy and proper equipment most fractures can be handled more successfully by the closed method. In a rough way such bones as the scapula, clavicle, sternum, ribs, pelvis, small bones, arms, fingers and hands, feet and toes, do not require the so called open plan, but all have their execptions. The simple easy fractures, those that can be easily reduced and with little trouble experienced in maintaining the fragments in position should not worry us much. X-ray, casts, and good after care gives you the result desired.

Since I mention the word "cast" I would like to emphasize one important thing in simple fractures of the wrist. It should not be left continuously on the wrist longer than one week and seldom necessary to be left longer than the end of the second week.

The cases which give us trouble are:

1. Cases in which we cannot get proper apposition by external manipulation.
2. Those in which we cannot maintain proper apposition after reduction.
3. Compound fractures.
4. Fractures where injury has occured to the surrounding structures and that require surgical care.

Group 1. Regarding the care of apposition, we consider all long bones belonging to this class. Any of them may have muscle or fascia interposed preventing apposition or they may be difficult to appose due to their overlying muscles. One is surprised at the fractures of both the humerus and femur in which the ends are wrapped with muscle tissue. A case of depressed skull fracture, fractures of the malar bone, vertebrae, head, of the humerus and femur, patella and many other bones fall into this group.

Group 2. Fractures that require fixation to hold the position are those upon which we most often operate and use some internal splint or fixation. To this group belong the lower jaw fractures, certain types of fractures of all long bones, especially the humerus, femur, bones of the forearm at middle or above, fractures of the patella; in fact, almost any bone may be subject to this classification. The femur, humerus, and both bones of the forearm especially in the middle and upper third more frequently require the open method than other bones. They are exposed to traumatism more because of function and position and for these reasons we must be assured of as nearly perfect result as possible.

There are many plans for the application of the principles of internal splints or the open method. Each

worker has popularized a plan and feels that his plan is superior and can be used in all cases. Those of you who have had broad experience know that it is best to fit a method to a case and not all cases to one method. The Lane plates are very popular with some and good results are obtained in many cases. Some of the spiral and oblique fractures are best suited to the Parham-Martin band while the sliding graft and the bone plug are best in others.

I have used all of these methods, carefully selecting the cases, with very good results. I believe all open operations for fractures however, should be done in a well organized operating room with exacting technic.

Group 3. Compound fractures always tax the ingenuity of all experienced men. No plan will serve all cases. Really, the ability of the surgeon must demonstrate the plan that is efficient. The Balkan frame should be made use of in many of these cases in connection with Hodgen and Thomas splints; in fact, the fewer compound fractures we have the more nights of real rest we will enjoy.

The plans I have mentioned permit you to look after the Group 4 classification, such as injured tendons, nerves, muscles, and vessels. I never hesitate to open a fracture anywhere in the body if I feel it should be done, always being governed by the character and location of the fracture and the length of time transpiring since the injury. If you have a depressed fracture of the skull it requires the open treatment or if the brain is compressed by hemorrhage or the cord is similarly affected it may require laminectomy by the open method.

A few important rules in conducting the care of fractures are as follows:

1. The recognized importance of immediate skilled treatment of a recent fracture.

2. The recognition and treatment of shock.

3. Character of first aid dressing.

4. Immobilization of fracture during transportation with emergency traction; therefore, the universal use of the Thomas splint or similar splint for fractures of the extremities is eminent.

5. Very scrupulous judgment against the use of metallic sutures and plates. A more general adoption of the suspension of fractures of the extremities.

6. The necessity of early active movement of joints contiguous to the fracture.

7. The value of active as distinguished from passive movements of joints.

I have not attempted in this paper to tell you how to treat fractures as this subject is thoroughly discussed in numerous books, but merely covered some of the salient features which are of importance to both the patient and the surgeon for the purpose of stimulating more thought in the management of this class of cases.

DISCUSSION

DR. A. C. SCOTT (Temple, Texas, opening):

Dr. Hatcher touched on many important points in connection with the general handling of fractures, and one of the first points he mentioned, to which I might call your especial attention, is that of handling patients—because what you say to a patient in regard to a fracture is just as important as the treatment itself.

I do not know anything, gentlemen, which has brought the medical profession into as much disrepute as the subject of fractures. The reasons for this are numerous, but perhaps the first of all is that too many of us treat fractures without giving special attention to them. We too often do what the doctor said, we set fractures and then go off and forget them. The dangers arising from improper treatment are too often forgotten. We are also too prone to make promises to patients, which are not warranted by the facts. I do not know anything which will get a doctor in trouble more quickly than to promise a patient something when the patient is almost certain to find out that the doctor is in error. It is very much like in the old days, when there were many doctors in a community who prided themselves on being able to tell how long a patient was going to live. Some would say, "Well, that fellow can only live twenty-four hours," and if he happened to live a day and a half or two days

the doctor got himself "in bad". I knew a doctor once, with whom I came in frequent contact through consultations, who was so cocksure of everything which he said to a patient that it made him real angry when matters did not turn out the way he predicted. To promise a patient with a fracture that he is going to be well within a given length of time is a more common source of trouble than to promise him a perfect function. We ourselves are guilty of making the grounds for many a damage suit. On the other hand, I regard that our experience in Texas has taught us that the great majority of damage suits are traceable to the remarks and the shrug of the shoulder of some competing doctor who has had the opportunity of seeing the case, and sometimes to the remarks and shrug of the shoulder of a doctor who has not seen the case. I do not know of anything giving more trouble than the off-hand opinion of the man who disregards the interests of the attending physician, of the man who is treating the case. I have known physicians to go on the stand and swear that a fracture would have united if they had treated the case by their own particular method. I recall a case that occurred in North Texas some years ago in which a physician gave testimony of that character when the bones were in perfect apposition. The patient had had two fractures, one had united perfectly, but the other, though in best apposition, with the exception of a lot of muscle, did not unite, yet the competing doctor, who was unquestionably jealous of the success or standing in the community of the attending physician, took the stand and swore that had it been treated by him, by his particular method, the result would have been otherwise. This is unfortunately too often true. While we may not make such a gross error as that man made, yet our fellow practitioners are too often the sole source of an unpleasant damage suit. We have in our State Society in Texas, a Council of Defense. This Council has done some splendid work and it has found by experience that its best work has come from ferreting out the source of the damage suit following fracture cases, especially, and whenever it finds that a doctor has made the error of giving some unfavorable comment in the presence of the patient, he is called to task by a representative or member of the State Defense Council and is given to understand that he is going to be held responsible for that suit by the State Medical Association. Usually then the damage suit is settled out of court and the lawyers get discouraged.

In recent years I have on a great many occasions come in contact with the medical profession over the country and I find that we are in considerable disrepute with the public as a profession. If such were not the case all the impostors, who are so thickly scattered over the country, particularly in our large cities, certainly would not have the strong hold they have on the people today. The time has come when we should think more cautiously in speaking of other members of the medical profession with whose work we may come in contact.

DR. J. P. KASTER (Topeka, Kansas): As I listened to the reading of the paper and to the discussion by Dr. Scott, I could not help but think how much better results we used to get in the treatment of fractures, before we had the x-ray. Every doctor that treated fractures, before we had the x-ray, was well satisfied with the results, and if the patient got a good functional result, he was satisfied, but in this day, there is no one satisfied with the result of the treatment of fractures. They meet a doctor or friend, who shrugs his shoulders and calls attention to the fact that the bone is not as good as it was before it was broken and advises an x-ray picture. The x-ray is very deceptive in telling what is wrong with the fracture Anybody can take an x-ray picture, but there are mighty few who can interpret one. It takes a trained man to interpret an x-ray picture correctly and tell you just what it means.

It is not possible for us to get a perfect anatomical reduction in the ordinary fracture. Of course, occasionally we can congratulate ourselves, when we find a fracture that is easily reduced and easily held in position, and we get wonderful results, but when we get good results in the ordinary fracture, with good functional result, we may have rather a discouraging x-ray. The anatomical reduction may not be very satisfactory and if you happen to have one of these cases, the patient goes to somebody else who takes the x-ray—your trouble begins. A simple change in the position of the broken bone will increase or reduce the deformity, as shown by the x-ray. It is hard to convince the patient, who sees the bones not anatomically reduced, that they will ever have a strong union. I recall a case many years ago, when the x-ray was a new thing. We took a picture of a wrist fracture, at the lower end of the radius. The x-ray picture showed a beautiful result, the reduction was absolutely perfect and the patient finally got well, but with a beautiful backward displacement. The x-ray had been taken from one angle. The most important thing in the x-ray, is that you have two pictures at right angles. I recall one case, in which a man was injured by falling from a box-car. He was taken to a hospital, and an x-ray picture made, which showed nothing whatever wrong with the bones of the vertebra, the vertebrae were all intact. He was brought to the hospital ten days later with complete paralysis. We took another x-ray, from before backward. and there was absolutely no displacement of any of the vertebrae. I turned the man over and took the picture in the opposite direction,

and we had a dislocation of the vertebrae, sufficient to compress the spinal cord. A deformity was felt in the man's back and the displacement was very much greater than you would have been led to believe from the physical examination .

There is one thing I feel about the man who uses the x-ray, and who uses it frequently, and that is that he gets the idea that the x-ray is an absolute necessity. It is a necessity perhaps, as a protection to you, and of great assistance, but it is not absolutely necessary. The young men get to depend on the x-ray instead of on physical examination and they will not attempt to make a diagnosis of the trouble, before they get the x-ray picture itself. It is all right to prove your diagnosis by x-ray, but not depend on the x-ray for everything.

We are also depending too much upon laboratory findings to make a diagnosis and we are neglecting two very important things, one of which the doctor mentioned in his paper. The first is a careful history of your patient. I do not believe half of us write the history that ought to be written, of the patient's condition prior to the time we saw him. A carefully written history is to me one of the most important elements in making the diagnosis. The next is a careful physical examination, in a fracture case, not only of the fracture, but of the patient's general condition, and so it is in every case, whether an injury or illness, a careful history and a careful physical examination, put you in a position to render the best service.

When are you through with the treatment of a fracture case? We have heard they are united in three weeks, fully united in six, splints are taken off and the patient is turned loose. Is that fair? Is it right? No, responsibility does not cease until we have secured the best possible functional result obtainable, under the circumstances.

Compound fractures, many years ago, in the time when the doctors were divided as to the question of the germ theory of disease(when a lot of pus was the thing mostly desired), in those days, compound fractures usually meant amputation. It is not so today; an indication for amputation in a compound fracture, is not the injury to the bone but injury to the soft tissue, and injury to the soft tissue is just as important as injury to the bone, yet you hardly ever hear it mentioned in regard to the treatment of fractures. Frequently much and serious injury is done to the soft parts. It is very distressing to the surgeon in charge when he removes his splint to find the man's toe drops and he cannot bring it back; the wrist drops and he cannot bring it back. The vessels may be destroyed, and there is nothing left but amputation. All these things are the results of injury to the soft tissue.

I recall being in a little western Kansas town one evening visiting some doctors in a small corner drug store, when the county attorney came in. I had the pleasure of meeting him, a pretty decent fellow he was, and as we sat there smoking, he finally told me that he had one of my brethren in trouble. He hold me what a wonderfully bad result this doctor had in a case of fracture of the femur, how the leg was shortened and crooked, and everything that could go wrong with a fracture. He went on giving me the details and telling me all about it. When he got through, he asked me what I thought about it, and I said I did not think anything about it. He said, "Don't you think that man is guilty of malpractice?" "Not at all," I said, "I have no opinion on the matter at all." "Well!" he said, "what is the matter with you that you have no opinion on such a case?" I said, "I have only heard one side of it, I have heard only your story and I do not know whether it is true or not; you have to give me the other side also." And so I say to you gentlemen, if you will take pains, when a fracture case comes before you to hear the other side, and take time to listen to what the doctor has to say, before you make up your mind, we will not have half the trouble with fracture cases that we are having today. When a man comes to my office to get an opinion for a malpractice suit, it gives me pleasure to show him the door.

This is the day of preventive medicine and I thought in writing this paper that the best way to keep out of trouble was to prevent it, and therefore covered the subject in the way I did; first by the way of obtaining a careful record, including all the history of the injury which was responsible for the fracture, physical examination, and all needed laboratory work, which is for the purpose of rendering the proper service to the patient, and in protecting yourself in rendering that service.

In Dr. Kaster's discussion he made a very good point when he said when does the responsibility of the surgeon cease? I think the responsibility of the surgeon ceases when the injured person is restored to the same position industrially and functionally as before he received the injury.

The x-ray, I know, is a bugbear to the physicians in one respect—that it does show us our bad results at times—but that is not the fault of the x-ray. We all know what a candle does when it is held with the shadow casting against the wall, and we all know what an x-ray or radiograph will do if it is not in proper plane with the position we are taking; the proper position we should be familiar with; the disproportions that are produced by improper positions of the part that is x-rayed and the plane of plate and the distance of the part from the plate.

I think when we take these things into consideration in our x-ray work and in the treatment of fractures that the x-ray is the most valuable adjunct that we have, not in the treatment of fractures, but in the study of the pathology of the fracture.

NERVOUS DISEASES AND THE GENERAL PRACTITIONER*

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The importance of the nervous system to the individual requires no demonstration. That upon the mind and brain depend the efficient functioning of the personality is universally accepted. Yet of diseases and disorders of the mind and brain there is a widespread lack of definite information. The public has a horror of severe mental disease and a dense ignorance of the real nature of the milder forms. Even the medical profession is or has been rather indifferent in its attitude toward both. As physicians we know that these ills are within our field. but we are well aware of the lack of definite information about them, and our uncertain touch in their handling. Doctors often say informally, "Of diseases of the skin aand of the nervous system I know least of all." It is as if we had a psychopathio-phobia, i. e., a dread of cases involving mental pathology. Consequently many patients whose symptoms are predominantly of the nervous system receive neither recognition nor adequate treatment.*

This is unfortunate and unjustifiable; first, because these patients are so extremely important both numerically and individually; second, because the mind is so much more important to everyone than the body alone that our responsibility as caretakers of the sick is the greater in the cases of the sick of mind; and, third, because newer knowledge of mental physiology and pathology have made great advances in our methods and powers for benefiting them, and much of this can and must be done by the general practitioner.

It will be my endeavor to set forth a general survey of the field of psychiatry from the medical standpoint, indicating the general directions of diagnostic and therapeutic procedure.

CLASSIFICATIONS OF MANIFESTATIONS

How is nervous and mental disease manifested?

First we should make the point that there is essentially no difference between "nervous" and "mental" or between "nervousness" and "mental sickness." After all, to be nervous is to be inefficient or defective in mental functioning, and the use of the word "nervous" is usually just a blind, or camouflage. All nervousness is of the mind, even although it may originate in physical disease (e. g. goitre), for much (though not all) mental disease is of physical origin, just as much physical disease is of mental origin. The laity cling to the word "nervous," but it should deceive or mislead no doctor. "Nervousness" has nothing to do, as a rule, with nerves, but with psychology.

The **diagnostic data** in any case consists of two kinds of information:

I. HISTORICAL.
   1. The heredity of the patient.
   2. The environment of the patient.
   3. The past history of the patient (medical, social, marital, economic, etc.)

II. EXAMINATIONAL.
   1. Physical examination of the patient.
   2. Chemical examination (laboratory).
   3. Mental or psychological examination.
   4. Special examinations, e. g., special neurological tests, x-ray, etc.

(*Read at the Annual Meeting of the New Mexico State Medical Society, at Santa Fe, May 28, 1924, and formerly in part at the Tri-County Medical Society, Blackwell, Okla., April 25, 1923, and the Seventh District Medical Association, Pratt, Kan., April 25, 1924.

*Some of the blame is to be put at the doors of the medical schools, in too few of which have psychiatry or neurology been adequately taught.

From these sources we get subjective data or "symptoms". In the realm of nervous disease we may ascribe some of these to the brain as an organ, and some to the mind as a functional process. This is best shown in a table as follows:

SYMPTOMS

(i. e., the patient's complaints)

Brain Disease

Headache.
Blindness, deafness, etc.
Speech defect.
Sleeplessness (sometimes).
Dizziness.
Vomiting.
Forgetfulness,

Mind Disease

(PERCEPTUAL FIELD)

Hallucinations and illusions (including hypochondriacal conversions).

(INTELLECTUAL FIELD)

Delusions.
Obsessions.
Amnesia.
Stupidity.
Slowness.

(EMOTIONAL FIELD)

Melancholy.
Anxiety.
Worry.
Irritability.
Self-consciousness.
Fears and phobias.
Suspiciousness.
Apathy.

It is obvious that these lists are suggestive only, not exhaustive.

SIGNS

(i. e., the doctor's findings)

Brain Disease

Motor disorders.
Sensory disorders.
Reflex disorders.
Chemical changes.
X-ray pathology.

Mind Disease

(Conduct disorder,—volitional field)

Hyper—excess.
Hypo—defect.
Para—anti-social, etc.

These symptoms and signs are like the atoms which go to make up molecules. Individually they prove nothing. It is their association in certain groups which is of pragmatic importance. Headache alone means nothing diagnostically; if combined with choked disc it suggests brain tumor; if associated with anuria it suggests uremia; if occurring in certain psychological combinations it may well be hysterical.

The "molecules" or entities in the field of **neurology,** such as tabes dorsalis, brain tumor, chorea, cerebral hemorrhage, poliomyelitis, etc., are within our field. They need no discussion here, however, because they represent merely a phase (difficult of diagnosis and treatment, and hence often requiring specialized aid) of internal medicine with which most doctors are fairly familiar. The mental disease entities ("molecules"), constituting the field or **psychiatry,** are the least well known and of these I would speak further.

CLASSIFICATION OF MENTAL DISEASES

Many names, some of them very formidable, have been coined to describe various recurrent combinations of the signs and symptoms referred to above as mind disease. This logomachy is one thing which has discouraged interest in psychiatry on the part of many physicians, and it is neither helpful nor necessary. It is quite possible to present the entire field of psychiatry in a relatively small number of major groups of disease entities.*

Thus there might be said to be **secondary** mental disease, i. e., dependent upon bodily or cerebral pathology, and **primary** mental disease, in which there is no structural or organic basis except such as develops secondary to and dependent upon the mental disease (e. g., loss of weight in melancholia, or vomiting in hysteria).

These appear in the following classification:

1. **The mental diseases secondary to general bodily diseases are:**
   1. Deliriums with fever, exhaustion, toxemia, etc.

*This classification was constructed by the author on the basis of the Eleven Group Nosology proposed by the late Prof. E. E. Southard of Harvard, Director of the Boston Psychopathic Hospital, with whom I was associated.

2. Drug, alcoholic and other intoxications and their sequellae.
3. Special pictures characteristic of certain systemic diseases (e. g., pellagra, diabetes, goitre).

II. **The mental diseases secondary to brain tissue injury are:**

4. Neurosyphilis (syphilitic encephalitis).
5. Other encephalitis forms, including "sleeping sickness."
6. Tumors, abscesses and other focal lesions giving mental symptoms.
7. Feeblemindedness, innate and acquired, juvenile and senile.
8. Vascular lesions, especially arteriosclerosis, hemorrhage and thrombosis.
9. Certain degenerations (e. g., epilepsy,* Huntington's chorea).

III. **The primary mental diseases are:**

10. Paranoia and other paranoid psychoses.
11. Dementia precox (schizophrenia).
12. Mania-melancholia.
13. Neuroses: (a) Hysteria.
    (b) Neurasthenia.
    (c) Psychasthenia.
14. Psychopathies.**

PROGNOSIS

Such classifications are valuable because they outline the field, and give a general basis for prognosis and treatment. Of course, in psychiatry more than in any other field of medicine the individual case must be taken into account, but in general we know, for example, that deliria have a better prognosis than dementia precox, and that the treatment of neurosyphilis is of a different sort from the treatment of melancholia. In a general way the chief prognostic indication of the 14 groups may be indicated as follows:

1. Deliria—Very good.
2. Drug disease—Rather bad.
3. Symptomatic psychoses—Good.
4. Neurosyphilis—Fair.
5. Encephalitis—In doubt.
6. Tumors, etc.—Fair.
7. Feeblemindedness—Bad.
8. Arteriosclerosis—Fair.
9. Degenerations—Bad.
10. Paranoia—Bad.
11. Dementia Precox—Rather bad.
12. Manic-depressive—Good.
13. Psychoneurosis—Good, often very good.
14. Psychopathies—In doubt.

So much does the prognosis depend upon the treatment, however, that these indices are of only the most general significance.

TREATMENT

The ultimate purpose of all medical study is the practical matter of treatment (and prevention). Diagnosis is only of value because it serves as a guide to prognosis and treatment.

Treatment methods and technic in psychiatry have been vastly augmented in the past ten years. The war, with its thousands of cases of shell shock, the advances in the study of unconscious mental processes stimulated by Freud, Prince, Janet and others, and the researches in brain surgery, physiotherapy, etc., have combined to make tremendous changes in the handling of these cases.

Some of the general therapeutic indications for the groups above listed are as follows:

1. Deliria—Hydrotherapy.
2. Drug Diseases — Confinement and withdrawal.

*"Epilepsy" is probably not a disease, but a syndrome occurring in all three of the above divisions.

**In this group we place behavior disorders, emotional disturbances, characterological twists, perversions, etc., which are usually of incomplete development from the medical standpoint, but of immense importance because of the conflicts with society, school, law, etc., that frequently result. They are attracting great attention among psychiatrists now, but do not lend themselves well to mass classifications and are grouped here for purposes of completeness under the name "Psychopathies." The two boys on trial in Chicago may have been examples, but every psychiatrist sees many such, in less spectacular circumstances, in private practice.

3. Symptomatic psychoses—Medical.
4. Neurosyphilis — Arsphenamine, mercury, iodides.
5. Encephalitides — Spinal fluid drainage and medication.
6. Tumors, abscesses—Surgery.
7. Feeblemindedness — Education and endocrine therapy.
8. Arteriosclerosis—Medical.
9. Degenerations—Medical.
10. Paranoia—Confinement.
11. Dementia Precox—Confinement, organotherapy, psychotherapy.
12. Manic-depressive—Isolation, hydrotherapy, psychotherapy.
13. Psychoneurosis — Psychotherapy.
14. Psychopathies — Psychotherapy, environmental change.

These treatment methods may be systematically considered according to the following outline, which in a measure is self-explanatory. There are patients who can best be treated in the office, and others who should only be accepted for treatment in a hospital. One of the most important (and often most difficult) problems is to decide which case should be treated intramurally and which extramurally. Psychotherapy is far more successful in the office than in the hospital; hydrotherapy is almost impossible in the office. Neurosyphilitics usually do not require hospitalization; melancholiacs almost always do. The difficult decisions arise in borderline cases and especially in the psychoneuroses.

TYPES OF TREATMENT

I. Extramural therapy.
1. Medicinal (including endocrine and antisyphilitic).
2. Physiotherapy (electrical, massage, etc.)
3. Psychotherapy.
   (a) Suggestion and other "forget it" types.
   (b) Psychoanalysis and other "recall it" types.

II. Intramural therapy.
1. In the home (almost never practicable).
2. In jail (still much indulged in).
3. In state hospitals.
4. In private hospitals, i. e., sanitaria, or special departments of general hospitals.

In my opinion the hospital treatment of mental and nervous cases should be thoroughgoing to be worth anything at all. There should be enough nurses to make unnecessary the locking of doors, with all the bad psychology of that procedure. These nurses should be not only registered nurses, but nurses specially trained in psychiatric nursing. The accommodations and appointments of the rooms should be above criticism. An unusual degree of quiet should be maintained, and the smell of ether and cries of suffering patients excluded. Provisions for hydrotherapy, physiotherapy and massage should be available. Special attention should be given to diet, and if possible occupational therapy shold be provided. This in general is what I try to do with my hospitalized cases in Topeka.

But there are many cases of nervous and mental disease whom you will not send to me at Topeka or to any other psychiatrist; who may not even need special examination in their homes, but whom you must diagnose and you must treat. I make the point that just as the general practitioner does minor surgery and refers his major surgery to the surgeon, so he must distinguish between major and minor psychiatry, and the minor psychiatry he must learn to handle himself. There are plenty of cases too difficult and too tedious for him, at least without counsel, but more numerous than these are those for whom he must do his best, unaided except insofar as these suggestions today and similar ones may aid him. It will no longer do to say of a nervous patient that it is "only hysteria," or that it is "all imaginary," or that it is "just plain meanness." These descriptions are inaccurate, false, misleading and lead to grief for their coiner. It must not continue to be the vogue to advise nervous cases to "take a trip;" it rarely benefits them and often aggravates the illness. And as for useless

surgical operations such as perineorraphy and ovariotomy, in the treatment of mental and nervous cases, I think the time will come when such treatment will be considered as unjustified as an appendectomy in pneumonia. Surgery of the belly does not cure syphilis of the brain or twists of the mind.

The personality of the physician, however, his earnestness, his honesty, his sympathy, and his interest in the case go far to help many a nervous sufferer. Some cases need a correction of the primary physical fault; some need the services of a psychiatrist for major mental surgery. But the great bulk of the sick, nervous and mental as well as cardiac and obstetrical, remain for the general practitioner—the backbone of our great profession—to do his honest and intelligent best to help.

DISCUSSION

DR. ALFRED H. VOGT (Albuquerque, N. M.): In my opinion, Dr. Menninger has covered completely the course of psychiatry, and I believe I am correct in saying a more comprehensive course than is offered in some of our medical schools. I asked Dr. Thompson just a moment before the close of the paper if he could recall anything that was omitted, and he agreed with me that everything of importance had been included in the paper.

One part in particular of this paper deserves special attention, that is the history of the case. I believe if Dr. Menninger had had more time he would have mentioned this also. Neuro-psychiatric histories must be detailed and cover completely the immediate and collateral family history, just as well as the personal history from the cradle to the present day.

In the family history we are particularly interested in hereditary diseases, and family influence on the patient's present condition. In the personal history we are interested in normal or abnormal birth and development, progress and behavior at school, education, childhood reactions and puberty. Continuation of homosexual characteristics or age at which heterosexual experiences occurred; the economic condition, number of positions occupied and reasons for leaving employment, if any; associations with others, and why; marital status, home conditions and the like. Next we are to inquire into the social reaction, secluded personality, persecutory trends, criminal tendencies, abnormal behavior, etc. In the medical history, syphilis, alcohol, influenza and prolonged infective processes are important for their relationship to certain types of neuropsychiatric disorders.

The classification into fourteen groups as described in the doctor's paper is, I believe, an advance in neuropsychiatry. Heretofore our arrangements were not orderly. As I heard that part of Dr. Menninger's paper, I immediately pictured a chain with fourteen closely associated links, each link representing an entity. Starting from the first, by a process of elimination, we come to the weak one and in that way make our diagnosis, much as we do in medical and surgical diseases. This systematic grouping had not occurred to me before.

DR. C. W. THOMPSON (Pueblo, Colo.): I am sure you will agree with me that we are to be congratulated in having heard Dr. Menninger's very excellent presentation of this subject in which we are all interested. He has stated things so concisely, fully, thoroughly and clearly that there is very little to be said in discussion.

It is the general practitioner, for whom I have a very high regard, who usually first sees the neuropsychiatric case, and I want to urge upon you the importance of continuing to care for these cases in a scientific manner rather than to surrender them to the care of the minister, christian scientist, the osteopath or whoever assumes to have special jurisdiction in this regard.

Dr. Menninger, of course, comes in contact more largely with the very early cases, while my experience is with hospitalized cases. The modern neuropsychiatric hospital must consider these cases from every possible angle and more especially from the standpoint of internal medicine.

What Dr. Menninger said about epilepsy is particularly interesting to me since I have recently had a group of fifty men, who served in the World War, under my observation, all of whom had epileptiform attacks. These cases were studied intensively and various lines of treatment were instituted with marked improvement in many cases.

DR. EVELYN FRISBIE (Albuquerque, N. M.): I want to congratulate Dr. Menninger on his very valuable paper. I have never pretended to know anything about neurology and agree with Dr. Vogt thatt his has been a better course in neurology than perhaps anything any of us have had.

In speaking about the different diseases, the doctor said very little about the attitude of the physician. I think the whole handling of the subject depends very largely upon the personality of the physician, and there are two things to which I wish to call attention in the physician's attitude toward the nervous patient. One is the sympathetic viewpoint, and the other the ability of the physician to put himself in the other fellow's place and get a viewpoint outside of his own. To my mind, there is the greatest lack in the physician's judgment of all cases of neurology.

DR. KARL A. MENNINGER (Topeka, Kansas), closing discussion: I want to take this opportunity to express my gratitude for the invitation to be here. I appreciate very

much your inviting me to come, have enjoyed the meeting thoroughly, and wish to thank the doctors for discussing my paper.

After all, we are not competitors, not even we who are limited to the field of nervous mental diseases. There are many more nervous cases than the present supply of neuropsychiatrists can care for, if recognized. One very embarrassing feature of our work is that we often hear of persons who say, "Oh, I was a patient of Dr. So and So; I asked him what about a nerve specialist and he said, 'No! forget it! You're all right' "—and not being referred to anyone, the person drifted off to the nearest osteopath or chiropractor, and in this way these patients often lose faith in doctors generally.

A study of the nervous patient will do more to help us to know how to regard the so-called cults than anything else.

I think everything the doctors have said in addition to my paper should be in it, and shall incorporate those points.

DIETETIC INDISCRETIONS PRODUCING AND AFFECTING CARDIAC CONDITIONS

E. AVERY NEWTON, M. D. F. A. C. P., Los Angeles, Calif.

Diet is defined as "the customary allowance of food and drink taken by any person from day to day." There are a variety of special diets compiled for different conditions of mankind, many of which have been given the name of the originator of these special formulas, or combinations and amounts of foods, to be taken per day.

Almost every individual takes more food during the day than is needed for his or her maintenance. Growing children require more food per pound of body weight than adults of middle life who are using their full amount of energy at their work. One who is in good health, and especially during the prime of life, can partake of large amounts of food in excess of the bodily requirements and they do not feel any very noticeable ill effects from such over indulgence, while those individuals who have passed their prime and are entering their declining years feel the effects of over indulgence of food or the taking of foods which are not easily digested, very much more than young or middle aged persons. However, the constant and persistent taking of more food than the individual requires, sooner or later begins to tell on any one who persists in so doing. I believe more lives are shortened, and more suffering caused from over-eating and the consuming of articles of food which are indigestible than from any other single cause, and probably more than from a large group of causes of illness and suffering.

We are all in so much of a hurry in these days of turmoil and strife for the almighty dollar, or quite as important pleasure, that we drink our meals instead of eating them. Some writers trying to account for the origin of man have claimed that we have descended from birds. If this theory is true, evolution did not anticipate the present manner of man's partaking of his food, or the gizzard of the fowl would have been allowed to remain as a part of our anatomy to supply an accessory to our teeth which are but little used in preparing our foods for the remaining portion of our digestive canal to properly digest and assimilate.

Heart disorders do not originate from within the heart itself; they are secondary to some other condition within the body, and are caused from this outside source. We all know that patients who have chronic focal infections or have had acute infectious fevers or syphilis do, very frequently, develop cardiac conditions, such as valvular lesions, pericarditis, endocarditis and myocarditis.

I make it a practice always to try and determine the cause of the cardiac impairment in all cases coming under my care, and it is striking how many cases are seen in which so-called indigestion is the only condition the patient can give any history of. They have no focal infections, have not had any illnesses and yet they have an impairment of the heart that could only come from some source outside of the heart itself.

(*Read before the 33rd Annual Session of the Arizona State Medical Association, in Phoenix, April 24-26, 1924.)

There are, however, many cases of disturbances of the digestive tract that are secondary to an impaired heart; in fact, I believe that in all cases where there is a poor circulation, you will always find digestive disturbances; this, of course, is easily understandable.

What I wish especially to emphasize is the frequency with which we find marked cardiac weakness due entirely to dietetic indiscretions. The condition of the heart found in these cases is a weakened myocardium; dilatation is usually present, for these patients do not seek medical advice until they have some decompensation of the heart muscle. If you see them when the decompensation is slight, they will have only a slight impairment of their reserve force. This limitation may only cause symptoms when it is exhausted, the exhaustion occuring sooner than normal. They wonder why they tire now when only doing what they formerly could do without feeling fatigue or discomfort. In a mild case they only complain of breathlessness, weakness and possibly palpitation, and, in proportion to the amount of decompensation, of discomforts such as extreme exhaustion, precordial pain, or angina of varying degrees. Examination reveals an increased area of cardiac dullness, a more or less dropsical condition of the extremeties and, in advanced cases, of the entire body. Often in these cases the interstices fill with several pounds of fluid before any dropsy is noted. There is also enlargement of the liver, a lessened urinary output and effusion of fluid into the serous cavities in the more advanced cases. Pallor of the face is usually present even in very mild cases following exertion. Most all of these patients complain either of distress in the stomach following the taking of food or of gas in the stomach or bowels. In those who have pain in the stomach the distress occurs in from one to two hours after taking food; they have frequent eructations of sour fluid, a large amount of gas and frequently are annoyed by wakefulness from midnight or soon after. Many complain of pain, a gnawing or a burning sensation in the epigastrium for an hour or so before meals. They will tell you that whatever cardiac distress they have is most apt to occur on exertion just after eating, or when they have the epigastric discomfort or feel distended with gas.

Almost all of these cases are constipated to a more or less degree. There are, however, many who have mucous colitis in different stages with the resultant alternating diarrhea and constipation. It is striking how often these patients have pylorospasm or cardiospasm or these two combined causing intense suffering, and they will insist the pain is in the heart.

I find the examination of feces most important. There is in most cases large quantities of undigested food (food that has been so poorly masticated as to be undigestible). The odor is sour in some and putrid in others depending on whether there is fermentation or putrefaction occurring. If fermenting, they are acid in reaction and full of gas bubbles.

My belief is that there are today more impaired hearts and kidneys from the absorption into the system of the products of intestinal fermentation and putrefaction than from all other conditions combined. We all know that heart and kidney diseases are increasing very much and undoubtedly the greatest causative factors are overeating, indiscreet eating and failure to masticate properly.

We who live in the Southwest where the mean temperature for the year is 62 to 70 degrees Fahrenheit (1) cannot use the amount of food that those living in the northern climates can, where the mean temperature is from 45 to 50 degrees Fahrenheit (2) without paying the penalty for so doing. Most of us are importations to this warm climate and learned to eat where more food is required. A very few people forget to eat or only eat the proper amount and kind of foods as compared with those who eat too much and the wrong kind of foods. These patients make marked and rapid recoveries if put on a proper diet and at absolute

rest, with a mild heart stimulant to aid the circulation which in turn assists the digestion.

(1) Los Angeles 62 degrees F. average for 46 years.
El Paso 63 degrees F. average for 25 years.
Phoenix 69.5 degrees F. average for 28 years.

(2) St. Paul 45 degrees F. average for 31 years.
Portland, Maine, 46 degrees F. average for 32 years.
Chicago 48 degrees F. average for 31 years.
Cleveland 49 degrees F. average for 33 years.
Denver 50 degrees F. average for 31 years.
Omaha 50 degrees F. average for 33 years.

DR. F. T. FAHLEN (Phoenix): When you get a paper that is short and comprehensive like the one just presented, it does not leave much to discuss. Being particularly interested in heart work, what Dr. Newton says appealed particularly to me. For years, while practicing in St. Louis, I kept Sunday morning practically only for a number of men over fifty years of age. It was a sort of police court to simply observe their conditions. The history of the majority of the cases was this: They had been high tension brain workers; they had not exercised much; their positions had involved great responsibility. The average history they gave of the day's work was this: get down possibly at eight or nine in the morning after a heavy breakfast including meat and potatoes and fried things, several cups of coffee, and working intensively over a desk. They seldom move from their desks. They would leave about one o'clock, usually for the club, precede their meal with a high ball or cocktail, sit down to rare roast beef with all the trimmings and pie, then they go back possibly at two o'clock and work intensively until five or so, then go out to the club and play cards until seven o'clock, drink a high ball or two or three and go home to dinner at seven o'clock—roast beef again with all the trimmings. In the evening, they sit down and go through the same sedentary evening.

Now, it has been proven that this leads to continued hyperemia of their splanchnic system with subsequent sclerosis. That leads, of course, to an increased blood pressure, vascular changes with resultant cardiac disturbances. The pictures that we get subsequent to that sort of thing is the usual picture of break down subsequent to a myocardial degeneration.

Now, I do not believe in prohibition but I think it has done that type of people good. We know that alcohol stimulates appetites and I think they eat less. Our golf links are crowded with this type trying to regain their youth and it can't be done. Their blood pressure is high, especially the diastolic pressure. I do believe that a better regime for this type of case, not excessive exercise, well directed, less eating, less drinking has and will prolong the life of a man over fifty.

DR. WIN WYLIE (Phoenix): I think perhaps it would be well to emphasize the doctor's paper by outlining a case that comes under it. I had a very prominent citizen of this community under my care for angina pectoris. As most of you know, I have practiced medicine nearly fifty years and, during that time, I have had numerous cases of angina pectoris and it has been my misfortune to see them all die. Some soon and some a little later but they all went out with angina pectoris and most of them went out promptly. This patient that I had was a very warm particular friend of mine and I was not satisfied with the usual conditions and the usual results, so I induced him to get on the train with me and go over and see Dr. Newton. I did not think Dr. Newhon knew all there was to know about angina pectoris and I did not know that he knew anything about it but I did know that he is an exceptionally good heart man, and I expected him to give us something for this man's heart, if he did anything at all. After giving him a careful examination extending over a number of days, he told the patient that he did not have any occasion for teeth, because he did not use his and, not needing any teeth, he prescribed a diet of buttermilk. Now, he was having attacks of angina pectoris, quite severe, every two or three days, sometimes twice a day, and, from the moment that he went off of his ordinary diet and went onto his buttermilk some three months ago, he has not had one single attack of angina pectoris. He is doing splendidly, his heart is about two-thirds of the size it was at the time of the examination and he gives every evidence of a perfect cure of angina pectoris, not by treating the heart but by allowing his stomach to do less work.

DR. NEWTON (closing): There is only one point in Dr. Fahlen's discussion of the paper. He brought out the fact that exercise is indicated where they have not had any enlargement of the heart. In enlargement of the heart, I insist on practically absolute rest. I don't think that a hard muscle will improve with exercise any more than a broken bone will improve by motion and, therefore, for that reason, I always put my patient at absolute or practically absolute rest until I get the heart reduced as much as it will reduce and give him a chance to build up—give the heart a chance. I always explain to the patient if he had a broken bone he would not wiggle it and, if he has a broken compensation he had better not. They will do very well, that is, this type of case that does very well, if you get these cases early enough and show them the error of their way, the drinking of their food or partaking of rich foods, before you can put them on a certain amount of exercise and a very much more modified diet.

TRACHOMA*

JOHN McMULLEN, M. D., United States Health Service

It is a great pleasure to have my official duties bring me to Arizona and Phoenix at just the time your State Medical Association is in session and I appreciate very much the honor of being invited to take part in your program. We officers of the Government—of the Public Health Service, as you know, are nomads to a great extent. In conducting the trachoma work for the Service, I visit a number of states but this is my first visit to Arizona.

In practicing preventive medicine, the doctors are the only people on earth today who are sawing off the limb between themselves and the tree, so to speak. We doctors are endeavoring from every standpoint to prevent people from getting sick and that, of course, is the object of that branch of service to which I have the honor to belong, the United States Public Health Service. For some years I have been assigned to the work pertaining to diseases of the eye, with special reference to trachoma. After having been in the trachoma field for a number of years, I realize that there are a number of things we do not yet know. Trachoma, we all know, is not a new disease. In fact, it is probably the oldest communicable disease of which we have record. Unfortunately, we do not know the cause, but I am pleased to say that the Public Health Service has established a research laboratory in connection with one of the government trachoma hospitals, for the purpose of making every effort to discover the etiology of trachoma.

In 1897 the government classified trachoma as a dangerous, contagious disease of the eyes, for immigration purposes. This regulation was the direct result of the efforts of the ophthalmologists of this country. The medical examination of arriving aliens is done by the officers of the Public Health Service; any arriving alien who is found to be suffering with trachoma must be deported to the country from which he came. If the doctor making this examination certifies further that this disease existed at the time of foreign embarkation, the steamship company is fined $100.00 each for such aliens having been embarked.

Perhaps you are familiar with the trachoma work that has been done by the Public Health Service during the past ten years. There are parts of our country where trachoma is unduly prevalent. You have all heard probably that trachoma exists in the Appalachian Mountains, as there has been a great deal said about its prevalence in eastern Kentucky. There probably is no more trachoma in Kentucky than in some of our other states, but much publicity has, for some years, been given to this. The Service commenced trachoma field work more than ten years ago in the Appalachians and it has since been extended to a number of states. I was very much surprised, about two years ago, to find a real trachoma problem in southern Georgia, where no one suspected its existence, although it was known to be present in northern Georgia. An eye specialist had been treating a number of cases he believed to be trachoma and gave active co-operation in helping to clean up the situation. Our trachoma work is, and has been, done in co-operation with the ophthamologists. Until the etiology of trachoma is established, there will be division of opinion as to diagnosis; trachoma diagnosis at present is based upon personal opinion of the individual doctor and this opinion is based on whatever experience he may or may not have had in dealing with this disease. We agree that it is a communicable disease; and, untreated or

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without proper treatment, it continues active for years or a lifetime; it is to be found in all ages, from babyhood to old age. Any case of real trachoma always leaves a certain amount of cicatricial tissue. Records of our trachoma clinics show that an average of fifty per cent of all cases have impairment of vision, varying from slight impairment to total blindness. In the absence of some definite sign or instrument of precision by which we can say positively that this is, or is not trachoma, it is very essential for those of us who are doing routine trachoma work to have in mind a very definite idea of the pathological condition we are going to call trachoma and what we are going to call follicular or benign conjunctivitis, as well as a middle class of cases that we call suspicious. To say suspicious is an admission that we are unable to make a definite diagnosis; the fact, however, that we are unable to say positively that it is not demands that it be considered potentially a case of trachoma until that suspicion is cleared up and it is found to be a benign condition. Some time ago, I was stationed on Ellis Island for a period of years; the major portion of this time I had charge of the Immigrant Hospital where it was my duty to make diagnosis of the eye cases and to say which was and which was not trachoma. Many of the cases were sent to the hospital merely for observation, and it was our habit to retain them anywhere from a few days to a few weeks, under treatment before making a diagnosis. The simple conjunctivitis would clear up under treatment, but those that were trachomatous would persist and soon show the characteristic hypertrophy, granulations, etc., of trachoma.

We make a diagnosis of trachoma which the conjunctiva presents hypertrophy and the so-called trachoma granulations—the two things that must be present in order to have trachoma. In determining the presence or absence of hypertrophy, I find the appearance of the small blood vessels a good guide. Without real hypertrophy the small vessels of the palpabral conjunctiva can be readily traced (eyelid inverted) uninterruptedly from the ciliary border to the cul-de-sac. If hypertrophy is present to any appreciable extent, this will not be the case, but some portions of the vessels will be obscured or buried beneath abnormal tissue. After years of experience in trachoma work, I am convinced that trachoma is a curable disease in practically every instance. I want to say here, that we have not found anything specific, nor have we anything particularly new to bring forward in the treatment of trachoma, but I do believe that we have so systematized the grattage as to obtain the best possible benefit from this procedure, which might be termed "selective grattage"—selective insofar as the amount of grattage to be be done in each individual case. What is necessary in the one case, would be absolutely inexcusable in another and vice versa.

DISCUSSION

DR. H. T. BAILEY (Phoenix): Mr. President, I don't want to discuss this in particular, but there is a man who has seen more trachoma in a week than I have seen in ten years. I would like to hear from Dr. Hawkins.

DR. E. W. HAWKINS (Sacaton): I agree with Dr. McMullen that trachoma is curable. For the past seven years I have treated an average of from ten to one hundred cases of trachoma a day. Some cases are cured very quickly, while others, of course, do not respond so readily. In the more stubborn cases, for best results, I find that daily treatments, sometimes for a long period of time, are required.

The Public Health Service favors the method of grattage in the treatment of trachoma. I have employed this method, but almost invariably use Prince's forceps, as I do not get as much scar tissue from the use of Prince's forceps as from the grattage, or the use of Knapp's forceps.

After complete removal of the granules I apply local applications of copper sulphate pencil daily until the patient is cured.

The most common of the many complications of trachoma that come under my observation is pannus, for which I use powdered jequirity in the eye. I recently had two Indian patients who were totally blind from pannus—one of whom had been blind for more than fourteen years. After several applications of jequirity at intervals of seven to ten days they were able to go anywhere they

wished unaided, and both state they expect to pick cotton in the Salt River Valley this fall. Both these men are past sixty years old.

I am glad to say that the trachoma situation on the Pima Reservation is under good control. When school started two years ago, among 300 pupils there were 180 cases of trachoma. In this same school today we are treating not more than 30 cases, and hope to clear these up by the end of the school year.

Most always there are thirty-five or forty adult Indian eye patients at the Pima Hospital. Most of these patients come in voluntarily from all parts of the reservation, and the majority of them remain at the hospital until cured.

(Note: The discussion was continued, at this point, by Dr. James S. Perkins, Special Physician at Large of the United States Indian Service, who mentioned, among other things, his technic of using cocaine in the eye and the danger to the cornea, and the occurrence of involvement of the lachrymal sac in trachoma. Up to the time of going to press, a correct transcript of Dr. Perkins' remarks had not been received.)

DR. D. F. HARBRIDGE (Phoenix): I was interested in the last remark that Dr. Perkins made regarding the question of trachoma in the lachrymal sac. I would like to ask him whether he sees it very often. I rather suspect it must be of rather unusual occurrence. During the past four or five months, I have reviewed every single article that has been published on trachoma, both in English and foreign languages, and, just offhand, I can recall but one instance mentioned of that particular condition. I do remember references to a number of cases in which the lachrymal sac apparently seemed to be involved in which there was a Koch-Weeks infection engrafted on a trachoma infection. This being cleared up, the lachrymal sac condition disappeared. I am not quoting from personal experience, but referring to the literature during the past year; that is, the literature of 1923. The question of trachoma control certainly is a very important problem for the welfare of the human race, and particularly, in view of what Dr. McMullen has stated; some sections of the country are much more infected with this disease than others. We hear a great deal about trachoma out in this country. No doubt, among certain classes of people, as, for example, the Indians and Mexicans, there are a great many cases. While a small percentage of the white race are infected, I do not think it has attained a degree of epidemic or a condition where we need feel any great fear regarding it. Where you have individuals housed in institutions or on reservations, or where they come in close contact in the use of living facilities ,among the white race there probably are a much larger number of cases. At one time during my experience I was a health officer in Philadelphia, but I found that the politics attached to my job were not to my taste, so I was promptly canned. That experience was during a smallpox epidemic and whenever there was a question of border-line diagnosis, it was designated smallpox until proven otherwise. This was done for the protection of the public, and I believe that the same principle should hold true in dealing with trachoma. If a given case is in any way suspected of being trachoma, it certainly should be handled as such until otherwise diagnosed, for the protection of the public. I believe in that principle implicitly, but I also believe that in making a diagnosis of trachoma in border-line cases, particularly with children, one should exercise great care so as not to subject them to wanton surgical procedure or severe medical treatment.

UNKNOWN: About what is the percentage of recurrence after what is considered a real cure and can you be reinfected with trachoma?

DR. H. R. CARSON (Phoenix): We used to have a trachoma school here in Phoenix, in which we had thirty-nine children with trachoma. The parents of these children would not consent to treatment, so the children were isolated in this special or trachoma school; yet these trachomatous children mingled after school with other well children.

We now report to the State Board of Health all cases of trachoma and they are quarantined and placarded until free of the disease. This placard and quarantine enabled us to clean up our trachoma school and also helps to force treatment on our new cases. We do have trachoma in Phoenix, especially among the Mexican population, and occasionally among white children, particularly poor children coming from Oklahoma and Texas.

To prove to Drs. McMullen and Perkins, the Government trachoma physicians, that we have trachoma in Phoenix, the school nurses, free clinic nurses and the school physician gathered up about fifteen Mexican children with suspicious follicular conjunctivitis or trachoma, and four of these hastily gathered group were bona-fide trachoma (Drs. McMullen and Perkins), one with well-developed pannus.

As school physician, the speaker finds it necessary to keep trachoma cases away from school until pronounced free from trachoma by an ophthalmologist, and refuse re-entrance into school upon order of the general practitioners, because our general men so frequently prescribe drops for the eyes and immediately certify their trachoma cases back to school.

DR. J. J. McLOONE (Phoenix): Dr. Harbridge did not have the opportunity of elucidating his remarks in regard to the differential diagnosis of trachoma. My experience has been, and I believe that this holds true for the other men in our specialty, that trachoma is rarely found in the well cared for white children. We frequently see cases of follicular conjunctivitis in school children.

These cases should not be confused with the various forms of granular conjunctivitis.

However, I agree with Dr. McMullen that there are border-line cases, which do not lend themselves easily to differentiation and which should be treated as trachoma until we feel safe in doing otherwise.

One of the speakers referred to the using of cocaine in the eye when operating for trachoma. This is perfectly permissible, if proper precautions are taken to prevent corneal abrasions, which might indeed result disastrously in the presence of a trachomatous infection.

I wish to compliment Dr. McMullen on his timely remarks, in regard to trachoma, which is certainly a disease to be guarded against and all possible measures should be taken to effect its cure and prevent its transmission.

DR. H. T. BAILEY (Phoenix): I understand that some doctor working in Egypt claims that Koch-Weeks bacillus is a forerunner or is a cause of trachoma.

I would like to ask if Dr. McMullen has made any observation along this line and if he thinks "pink-eye" leaves the lids in such a condition that trachoma will develop?

DR. W. O. SWEEK (Phoenix): One remark that Dr. McMullen made about the destruction of the cornea by cocaine.

I am not an eye man, and do not do any operative work around the eyeball. I find, however, that if you will take the skin of a raw egg, cut out a piece a little larger than the cornea, place it over the cornea with the albumin present, it will protect the cornea from damage. The piece should extend out beyond the cornea sufficient to protect the small blood vessels from the effect of the cocaine.

Another point is, do not use adrenalin. The destruction of the cornea by cocaine is due to its effect on the blood vessels surrounding the cornea.

DR. McMULLEN (closing): Trachoma is found in many parts of the country and I agree with the statement made here that we should be extremely careful in making a differential diagnosis between trachoma and follicular conjunctivitis. That is the condition most liable to cause mistakes in diagnosis. My opinion is that more errors of diagnosis are made in diagnosing benign conditions as trachoma rather than vice versa. Recently I was asked to visit a city where they had established a trachoma school and where there was considerable division of opinion as to what was and what was not trachoma. I was asked to meet with the ophthalmologists and examing these cases. I examined about thirty-five or forty, and out of the entire number I found only two or three that I thought had trachoma. I am not so sure now whether those were attending school. These cases had been seen by numerous ophthalmologists in the city and surrounding towns and there was considerable diversity of opinion.

I believe that trachoma begins as any inflammation of the conjunctiva, and it is often difficult to differentiate in the acute state in advance of observation under treatment.

A trachoma is cured when the inflammation has entirely subsided and the conjunctiva has been partly or wholly replaced by cicatricial tissue. A few of the cured cases will, unfortunately, have relapses and occasionally you will find cases with successive relapses.

I was very glad to hear the gentlemen agree with me that trachoma is a curable disease.

CONGENITAL SYPHILIS*

Edw. R. Cox, M. D., Clifton, Ariz.

The object of the presentation of this paper is to lay before you some of the principal points in the diagnosis and treatment of congenital syphilis obtained in a survey of the recent literature. No apology is thought to be necessary for omissions in the subject which are of general knowledge, although it was found to be necessary to recapitulate much that is.

Congenital syphilis manifests itself in two distinct clinical forms, the early and the late. In the early form the symptoms are present at birth or appear within a few days or weeks. In the late form symptoms may be delayed many years, in rare cases even to the twentieth year.

It is now generally believed that congenital cases are the direct result of the transmission of the infecting agent (treponema pallidum) from the maternal blood, through the placenta to fetal blood. The transmission of the disease from the father then would only be indirect, through the infection of the mother. The likelihood of infection of the fetus by the mother decreases with the lengthening of the interval between infection and conception; the earlier the infection the more likely the mother is to abort or miscarry and the longer the interval the more likely is the fetus to be born macerated or as a stillbirth or even to be born healthy or apparently healthy.

(*Read before the 33rd Annual Session of the Arizona State Medical Association, in Phoenix, April 24-26, 1924.)

The question is frequently asked, what percentage of the child population of a community can be deemed syphilitic. Hospital medical admissions show 4 per cent positive Wassermann's. Jeans and Cooke, by study of a large number of cases drawn from various classes of society, estimated that in St. Louis the incidence of hereditary syphilis at birth is only 3 per cent. Williams, of Baltimore, finds that a little over 6 per cent are infected. Probably the smaller figures are more nearly correct. Of these infected cases, it has been estimated that at least 25 per cent have or develop incurable defects such as deafness, deformity of palate and nose, impairment of sight, and mental deficiency. The problem is a serious one but in the light of recent research is by no means hopeless. Much can be done by prenatal treatment and early recognition and treatment of postnatal cases.

At birth the infant of syphilitic parents may show signs of syphilis as palmar or plantar pemphigus, ascites and lesions of various organs such as the liver, spleen, lungs and kidneys. It may soon succumb to multiple hemorrhages or grave jaundice. But more often the revealing signs appear some time between the first few weeks to the end of the fourth or fifth month.

The positive signs are as follows:

Palmar and plantar pemphigus usually appears at birth, occasionally after the seventh day but never after the fifteenth. Prognosis is generally bad because of associated visceral lesions.

Coryza should be rarely hard to recognize if syphilitic. Common coryza lasts but a few days and acute adenitis is accompanied by fever and usually otitis. Syphilitic coryza is persistent and the superficial lesions causing it often go on to affections of the mucosa, cartilage, periosteum and bone, resulting in secondary malformations of diagnostic significance later.

Enlargement of the spleen is almost diagnostic of hereditary syphilis when occurring in infancy and childhood. The liver is usually also involved and enlarged.

The three positive signs just mentioned, namely, pemphigus, coryza and spleen enlargement, appear very early. The following appear later, although exceptionally after the fourth month.

Mucous and cutaneous manifestations; the skin lesion is usually a macular rash resembling the secondary of acquired syphilis although occasionally it may be papular. It predominates on the face, buttocks, thighs and neck. Around the mouth or other moist regions the lesions become hypertrophied and form mucous patches, condylomata or fissures. The fissures, especially at the corners of the mouth, leave permanent scars of great diagnostic value.

Pseudoparalysis or epiphyseal dislocation occurs between the sixth week and the fourth month. It is due to gummatous osteochondritis. The limb, usually the upper extremity, becomes immobile, accompanied by swelling and pain which is increased by pressure or movement.

These positive signs of congenital syphilis are relatively rare considering the number of children who are infected. Hence, the diagnosis depends on minute clinical examination of every child whose health is not satisfactory and the probable signs searched for.

Among the presumptive signs are, a history of acquired syphilis in one or both parents or a history of repeated abortions or miscarriages, early infant deaths or congenital debility. The presence of hydramnios or frank signs of syphilis in the placenta are suspicious of its presence in the infant. A child without gastro-intestinal symptoms who does not gain in weight is probably syphilitic. The greater number of hemorrhages in the newborn are of syphilitic origin. Excessive crying, occurring especially at night and without appreciable cause, increased by movement, is suspicious. Habitual vomit-

ing without pylorospasm or pyloric stenosis is suggestive. Many congenital malformations and mongolism are frequently syphilitic.

Hutchinson's triad, including malformations of the permanent incisor teeth, interstitial keratitis and deafness, is almost pathognomonic.

The affections of the nervous system which suggest syphilis when found in infants and young children are, cerebral diplegia, Little's syndrome, spasmodic hemiplegia, "essential" convulsions, congenital hydrocephalus, essential bilateral convergent strabismus, mental retardation, idiocy, and imbecility. Syphilitic meningitis may easily be mistaken for tuberculous meningitis. Hereditary syphilis is very often associated with rachitis. Both of these diseases produce changes in the bones, particularly about the head, producing in this location characteristic nodosities in the frontal and parietal regions, causing the vertex of the head to appear square.

Although hereditary syphilis usually manifests itself in the first few weeks or months of life it is by no means uncommon to find the first signs appearing much later, even in early adult life. Syphilis of the nervous system especially has long periods of latency. The usual time for the development of juvenile paresis is from 10 to 15 years, although earlier and later cases are encountered. It has been estimated by Fordyce and Rosen, working in the Vanderbilt Clinic, New York, that about twenty-five per cent of hereditary cases have neurosyphilis, The prognosis of these cases, even under intensive treatment, is not good.

OTHER METHODS OF DIIAGNOSIS

X-ray of the long bones for evidence of periostitis, gummatous invasion or osteomyelitis, is a very valuable procedure. The bone changes in hereditary syphilis are productive.

The Wassermann reaction: All clinicians agree that clinical evidence must take precedence over laboratory findings in the diagnosis of hereditary syphilis, but routine Wassermann tests in suspected syphilis without clinical evidence emphasize the importance of frequent application of this test during the early months of life; for children born healthy with or without negative blood reaction may later develop skin or other lesions and a positive blood reaction. A negative Wassermann test does not in itself exclude syphilis. In the newborn infant the reaction may be negative for several weeks and then become positive. It is very common for the Wassermann to become negative about the time of puberty in cases previously positive. Warthin has proved at autopsy that treponemata are present in a considerable proportion of patients with a negative reaction during life. Observations by Strickler, Musson and Sidlick that intravenous injections of salvarsan into non-syphilitic patients with previously negative Wassermann reactions were followed in more than half the cases by a positive reaction, suggest a fallacy in the accepted ideas of the provocative dose. All authorities agree, however, that in the absence of clinical signs where the presence of syphilis is suspected, greater reliance should be placed on routine tests beginning a week or ten days after birth and thereafter frequently to the age of two years. If at the end of this time the reaction is negative in both blood and spinal fluid and clinical signs are absent, it is then probable that the child is free from syphilis. Fordyce and Rosen call attention to fluctuation of the Wassermann test from positive to negative and vice versa in some severe infections with or without treatment and warn against accepting one or even two negative tests as conclusive evidence against the presence of syphilis.

It is known that treponemata may remain localized for years in one tissue without inciting an inflammatory reaction as in the case of many subjects with interstitial keratitis. The cases are often negative prior to treatment, although commonly positive after the first few treatments.

In central nervous involvement both

blood and spinal fluid may be negative and a considerable number of cases show negative blood and positive spinal fluid reactions. Jeans, of St. Louis, calls attention to the advisability of doing routine spinal fluid tests on all suspected cases. In his experience one-third of all cases with hereditary syphilis have involvement of the central nervous system.

All authorities agree that findings in Wassermann reactions on umbilical cord blood are not reliable. Positive reactions are not always indicative of syphilis in the infant and negative reactions do not indicate that the infant has escaped. Macroscopic and microscopic examination of the placenta is fairly reliable and advisable in place of umbilical cord Wassermann reactions for early diagnosis.

In the treatment of congenital lues all authorities agree that some combination of arsphenamine and mercury give the best results. There is some difference in the method of administration by the various clinicians. Fordyce and Rosen of Vanderbilt Clinic, New York, and working in conjunction with the Sloane Hospital, have formulated a plan which has given excellent results in several hundred cases. The mercurial employed is mercuric chloride put up in palmitin in individual collapsible ampules, in doses of 1/10 to 1/8 gr. or larger for older children. The object in giving soluble mercury in oil is to favor slow absorption. The palmitin is in colloidal state and liquifies at 110 degrees F. Usually contact with the syringe after removal from the sterilizer is sufficient. The injection is made deep into the buttock about one inch from the intergluteal fold near its upper angle. The needle used is a Luer of 19 to 20 gauge, which is cut down to one-half to one inch in length. Mercury is given from four to six weeks, followed by rest period of the same duration.

Neoarsphenamine used is neutral in reaction. The site of injection is the same as for the mercurial. The authors warn against allowing the solution to leak into the subcutaneous tissues. They have devised a special needle for the purpose from one-half to one inch long with an oval concave shoulder which fits snugly to the buttock. Neoarsphenamine is given at weekly intervals in dosage ranging from .075 gm. to 0.2 gm., according to the age and reaction to treatment. These doses are employed from four to six weeks for a period of two years. The authors report but three complications. These were abscess formation caused by leaking of the drug into the subcutaneous tissues. They cleared up readily on incision and drainage. All patients treated showed marked improvement both clinically and seriologically. The intramuscular method of administration is chosen by these authors to avoid the unpleasant effects which sometimes occur after intravenous injections of neoarsphenamine.

Jeans, of St. Louis, bases the dosage of both mercurials and neoarsphenamine on the body weight more than the age of the infant. The complete course of treatment, including two rest periods of from four to eight weeks each, is continued at least two years, regardless of Wassermann reaction. Jeans uses the intravenous method altogether for neoarsphenamine injections. He precedes all such treatment by six to eight injections of mercury to avoid Herxheimer reactions. He reports no complications.

Malnutrition occurs with such frequency in syphilitic infants that it may be classed as one of the symptoms of the disease. Therefore breast feeding in syphilitic infants is very important, together with other hygienic measures.

Too much emphasis cannot be laid on prenatal treatment. It is agreed by clinicians that there has been a marked reduction in the number of active cases of congenital syphilis compared with former years. This is doubtless due to efficient treatment of prospective mothers who have been found to have syphilis. The employment of proper treatment during pregnancy has shown that a healthy child may be born of a properly treated syphilitic mother.

The prognosis of congenital syphilis depends on:

1. The amount of prenatal treatment.
2. Physical condition at birth.
3. The severity of the infection, whether visceral, cutaneous or neural involvement.
4. The time treatment is begun.
5. Type of treatment.
6. Toleration to treatment.

DISCUSSION

DR. W. W. HORST (Globe): Dr. Cox quotes Dr. Jeans and his treatment of syphilis in these children. I was intern for a few months in the city of St. Louis in the Children's Hospital while Dr. Jeans was resident at that hospital. We treated a good many of the children with congenital syphilis. The diagnosis was not much different from what it is in the adult. The lesions were just as varied as in the adult, and the treatment was with neosalvarsan, followed up with mercury. The results from the treatments at this hospital were just as characteristic and just as marked as it was in the adults. The great difficulty we had there was in getting the parents to continue the treatment after the lesions had healed up.

DR. COX (closing): I am very glad the doctor mentioned that point about continuing treatment. I guess all of us have the same difficulty in cases of this kind where the treatment lasts over several months or even years. It is a very difficult matter to have people see it that way. It is absolutely necessary, according to most of the authorities, to continue this treatment over a certain prescribed time not under two years.

THE PATHOLOGY OF PSYCHIC IMPOTENCY IN GONORRHEA*

R. A. HERNANDEZ, M. D., Tucson, Arizona.

Every member of the medical profession has had, I believe, in his practice, some patients complaining of virile impotency, irrespective of whether they are young and appear in good health; all of them with positive history of gonorrhea.

Two years ago a young man came to me complaining of insomnia, itching in the rectum, frequent desire to urinate, impossibility to retain his imagination, restlessness, confusion of his will, mental depression, sorrow, muscular asthenia, thinness of his legs, vertigo, painful wet dreams, and inability to perform copulation because he had incomplete erection and premature ejaculations. One year previous he had chronic gonorrhea, but at this time had no discharge.

Upon examination I found his prostate large and painful, two strictures in the penis urethra, and in the muscular portion. He became insane after one month and killed himself.

An autopsy was made and I found this pathology:

Induration of the urethra, especially in every lacuna of Morgagni and around the orifice of the excretory ducts of the Cowper glands and muscular portion of the urethra.

Atrophic induration of the pudic nerve and its branches, especially the dorsals of penis.

Nodular enlargement of the Cowper glands, prostate, seminal vesicles, ampulla of the vas deferens and tail of the epididymis and atrophic degeneration of the constrictor muscle of the urethra.

Enlargement of the bladder with ulcerative congestion of its mucous membrane, hypertrophy of the orifices of the ureter.

The patient, having had a negative Wassermann test and no evidence of tuberculous infection, and in view of the fact that tuberculosis always affects the head of the epididymis and not the tail, I believe that the above pathologic description was caused by the gonoccoccus infection.

Subsequently I have had several cases of psychic impotence. One became insane and is now an inmate of the State Hospital.

Gonorrhea is also responsible for the anesthesia sexual in women. As a general rule, the gonococcus affects the Bartholin glands, vaginal bulbs and clitoris, all of which produce a painful vaginitis and finally an induration of the nervous system, with

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nocturnal pollutions from these glands, causing mental depression and irritable nervous manifestations. Every woman whose Bartholinian glands have been removed invariably complains of sexual anesthesia. They have desire, but no sensation.

I believe that the disturbances of the physiologic function of the reproductive organs depend on the chronic irritation caused by the gonococcus infection on the nervous supply, so the motor and vasomotor impulses from the brain cannot pass through the affected fibers to produce the effect in the reproductive organs. By this reason there is no influence of the mind over that organ.

The varicoceles are also responsible for impotence; constipation and hemorrhoids reduce sexual power. Also, when there are strictures in the urethra, the pressure of the urine above the strictures causes a dilatation of the membranous urethra and infiltration of urine, from which it is believed comes the sclerosis of the corpus spongiosum and corpora cavernosa of the penis, which is another cause of non-erection.

This class of patients are very extravagant. I knew a lawyer with psychic impotency. He always had in his coat pocket one or two of his girl's silk stockings, removed by himself. He told me that since he was infected with gonorrhea he only had erection in a dark room and thinking and keeping in his mind the spectrum picture of a good looking girl that he liked.

Another case, a young matron, came to my office, asking for medicine for her husband. She told me that he was 25 years old and that he was unable to have intercourse on account of no erection, and the only way she could incite his passions was performing b e f o r e him, oriental dances, dressing purposely for the occasion. Inquiring in regard to his history, I found he had chronic gonorrhea one year before he was married.

I have used all methods recommended in medical literature in my treatment of gonorrhea. At present I am using the following:

One c.c. of gonococcus vaccine and two c.c. of antigonococcus serum mixed hypodermically. One injection every six days. I have treated fourteen cases and all are apparently cured. (The amount of injections are three.) In that number of patients, four were acute cases and ten had chronic infections.

As a general rule, the first injection produces a strong reaction, fever, headache, pain in the articulation and loss of appetite. The patient is obliged to remain in bed for twenty-four hours; if the infection is acute, there is considerable discharge, but after the second injection all of these symptoms are reduced and disappear after the third injection.

My idea is that the success of this method is in mixing the vaccine and the serum; I have used vaccine and serum separately upon the same patient without success, but when the two preparations were mixed, I obtained very good results.

I invite you gentlemen to try this method in cases in which you may have had more trouble and I think that the good results will gratify your experiment.

DISCUSSION

DR. C. S. VIVIAN (Phoenix, Ariz.): I think the doctor is certainly to be congratulated on the painstaking effort with which he has worked out a postmortem examination in this particular case. There are very few of us who would go to the trouble of following the thing down to its ultimate cause. When your genial secretary asked me to discuss this paper I looked around for a joker, knowing his propensity for practical jokes. But when I consulted him about it he assured me that it was no joke. He says it is entirely a serious matter. Having had no personal experience with this condition myself, I will endeavor to discuss it from the point of view of the patients who come to me with it. I think that the case the doctor showed is an extreme one. There are certainly other cases in which the pathology is not nearly so marked. Most of these individuals are rounders. They are very much like the ice box, they have to have a fresh piece every day, and it is largely in their heads. They overdo the sexual function, going from pillar to post, and finally they come to a time when they have exhausted their sex reserves. They no longer have the normal stimulus in the sem-

inal vesicles to initiate the process. These individuals are also usually of an introspective turn; that is, many of the things which come into their minds are centered around the sex function. Having failed once, they carry the image of that failure in the subconscious mind and it comes up as a spectre to haunt them the next time they attempt to have intercourse, and then they fail again or possibly succeed in having a partial erection or premature ejaculation. Now, there are individuals who have this condition, yet never had gonorrhea. They have just as marked or worse impotency. The doctor has shown us very clearly the pathology which can underlie the condition. I have had no experience at all with using a mixture of vaccine and serum in the treatment, but I have had some experience in treating the conditions locally through the urethra by means of an operating urethroscope. The glands which are inflamed along the urethra can be opened, and if not incised can be dilated, stretched and allowed to give up their contents by means of gradually increased sounds or by the means of dilation with the Kolmann dilator. The doctor did not say very much about the pathology around the verumontanum. Many of us see cases who have small growths on or directly in front of the verumontanum, very much like a papilloma in the bladder. Frequently we will find the mouths of the ejaculatory ducts closed by these little tumors. These things can result from the inflammation, chronic irritation of gonorrhea, and unless the urethra is carefully searched they are apparently without any demonstrable underlying pathology. Prostatic engorgement, of course, is responsible to some extent for this condition. Prostatic massage and irritation deals with that. One other thing is the infection of the seminal vesicles. Now it is very difficult to massage the seminal vesicles completely, you cannot empty them entirely by massage, so it is my practice along in the latter part of treatment of a chronic gonorrhea to have these individuals have intercourse, using, of course, a condom in order to prevent infecting their partner. That I know is contrary to the usual teaching. I want to thank you, doctor, again for presenting this paper, and congratulate you upon the painstaking effort which you have made.

DR. J. F. PERCY (Los Angeles): I want to discuss this paper, although I no longer practice general surgery. I am convinced this is one of the most important subjects in its practical application to our daily work, of the many that will be presented at this meeting.

The late Lawson Tate of England was responsible for the statement "that syphilis kills its hundreds while gonorrhea kills its hundreds of thousands." But even when this protean disease does not kill, its after effects may be such as to handicap its victim grievously, as was true in the case of the patient so well reported by Dr. Hernandez. We all readily recognize the disturbances that may come from food poisoning when manifested in the skin or joints. How a strawberry in a susceptible subject will often cause a most pronounced irritation of the skin. But too few of us have arrived at the stage where our experience has taught us that a chronic congestion in the deep urethra following an attack of gonorrhea, often years before, can throw the functional nervous system of its victim off its balance.

I am willing to be responsible for the statement that 95 per cent of the divorces that occur have back of them some perversions of the functional nervous system of the male which thwarts the normal functioning of his sexual system. And with this, in a very large percentage of cases, there will be found a low grade deep urethritis combined with pus in the seminal vesicles.

Divorce, therefore, is always primarily a medical question, rarely a legal one. Many of the men and many of the women whom we diagnose and treat as neurasthenics and who finally end up in the divorce courts, trying to find justice, all come to us first, but we rarely give them the help they need, in order to save them from their appalling domestic tragedies. Many of the neurasthenic men who consult us have deep urethral pathology which we do not find, or even get a history of. Then we may find on close questioning that they have forgotten something of their past, or more likely to lie to us about it.

A pitiable object is the old fellow who gets into the newspapers after he is sixty to eighty years of age through marrying a girl of sixteen. Another one in the same class is the old man who has raped a child and is sent to the penitentiary. Again, these sick old men but rarely present legal questions in the beginning. They are always medical, even though many of them often develop situations that may lead to most complicated legal questions later.

Inquiry will frequently develop the fact that practically all of these men have been plagued for a long time with every evidence of an insistent local genito-urinary pathology. It may be enlarged prostate, pus tubes or granulating areas in the deep urethra, to mention no more. With pathology in the thyroid gland we have no difficulty in recognizing the perverted physiology and the aberrations of the nervous system that often accompany it. Why have we failed to detect a condition that is more frequent than is goitre, and which is also more viciously disturbing to the sick individual and to the orderly development of the body politic?

Designing young women sometimes marry these old men and live with them long enough to share their property, then go into court and ask for a divorce, or, if they remain, it is with the purpose of keeping all of the estate from the old fellow's family. I could relate a number of serious situations of this character which the courts had to finally straighten out where a man of advanced years

conveyed the most or all of his property to a woman who was in no way entitled to it.

I want to emphasize that these individuals, whether young or old, are sick and that their illness is in no way connected with the question of morals, that it is not a moral question. Dr. Hernandez' paper was on the more acute manifestations of this condition, while I am talking on the neglected or chronic phases of the subject. He told us what could be done from treatment in the early cases, and I want to insist that the results in the management of the chronic patients is also very gratifying.

But after you cure the local conditions in many of these young men they frequently retain the idea that they are impotent, that they have "lost their manhood." These belong to the introspective type of sexual neurasthenia, and some of them are also not quite normal mentally. In the old days I made it a rule to instruct these men absolutely to shun all thought of attempting copulation, whether married or not, for six months. I gave my instructions, not only emphatically, but seriously, and explained to them the extreme necessity and importance of sexual rest and that they must not disobey what I said, under any circumstances, i. e., if they wanted to get their old-time sexual power back.

It is most interesting how these fellows try to follow your instructions for a while, get careless, and then they learn that their former disability exists no longer. The explanation is that your imperative instructions, that they must not do it, overshadows the fear that they had previously, and they find that they can, and that is all that is necessary.

As to the gonococcus serum—I have had no personal experience with it in the treatment of gonorrhea, but in my service at the Base Hospital, Camp Kearny, during the war, those who had charge of my G. U. wards employed, for the treatment of this condition, either the gonococcus or typhoid serums. I saw some most strikingly beneficial results following the often very severe reactions from the subcutaneous injection of either of these serums in men, who were absolutely helpless from extensive involvement of their joints in gonorrheal arthritis. The gonococcus is killed by any tissue reaction that develops a temperature of 105% which persists for fifteen to twenty minutes. The gonococcus, like the cancer cell, is extremely vulnerable to low degrees of heat.

Then, there is one final thing that I want to say, and it is that we do not instruct these sexual neurasthenics after we have succeeded in clearing up their local pathology. We do nothing toward trying to educate them away from the mental perversions which have resulted from it. We don't sit down, as we should, and try and explain to them how the infection in their deep urethra, prostate or seminal vesicles interrupts the normal sexual impulses to their brain. It is a slow and tedious process, because they have been trained in the wrong way for a long time. But if we take the trouble to educate them along healthy lines and away from their morbid ideas and impulses, I know of no class of patients in whom the final results are more satisfactory.

Some years ago I published a paper with the title "Phrenitis Prostatica," in which I described the varied and often serious mental aberrations that sometimes are found in old men following hypertrophy of the prostate gland. I refer to it here mainly to emphasize that there are two types of this condition, the acute, as described in the paper, and the later chronic troubles that follow from the early untreated manifestations of the disease.

STUDIES ON THE PHYSIOLOGICAL ACTION OF THE NATURAL RADIOACTIVE WATER OF HOT SPRINGS, ARK.*

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"A prophet is not without honor, save in his own country"—a very trite proverb which thoroughly accounts for some of the meanderings of the human psychology. As applied to hydrotherapy and watering places, this proverb no doubt explains why people in former years went to the European Spas, without first seeking relief from their ailments in the identical, if not better, facilities offered by their own country.

However, if the following figures, which were taken from the records in the office of the Superintendent of the Department of Interior, at Hot Springs, Arkansas, may be taken as an index, it would certainly seem that the popularity of Hot Springs as a health resort will stand unquestioned.

Year	Total Number of Baths Given
1915	606,215
1916	647,769
1917	740,966
1918	802,605
1919	817,037
1920	971,400
1921	897,820
1922	682,880
1923	661,171

(*Read by title before the Annual Meeting of the New Mexico State Medical Society, at Santa Fe, May 27-29, 1924.)

HISTORICAL

Considerable evidence is at hand to indicate that the Hot Springs were probably visited by DeSoto in 1541 and even by the Indians long before that. At any rate, by the year 1832, such sufficient evidence of the curative effect of the water was at hand that (in that year) Congress enacted legislation to, and did acquire, for the United States, the spring-bearing area, and the four sections of land around it, thus making "the first National Park in the country, and preserving the waters of the springs in perpetuity, free from monopoly and commercial exploitation." Since then, the Hot Springs National Park has been under the direct supervision of the United States Government through the Department of the Interior, which is represented in Hot Springs by a Medical Superintendent.

GOVERNMENT INSTITUTIONS

Pursuant to an Act of Congress of December 1878, the United States Government established a free bath house for the indigent, which institution was replaced by a new and modern bathing establishment in November, 1921. In connection with the new bath house, the United States Public Health Service, with the cooperation of the National Park Service, is operating a clinic for the examination and treatment of indigents taking the free baths.

In 1883, the War Department built, and has ever since administered, the Army and Navy General Hospital. The facilities of this institution are extended only to officers and men who have been honorably discharged or are in active service with the Army and Navy. Only those diseases are admitted which the waters of the hot springs have an established reputation for benefiting.

ANALYSES OF THE WATER

Numerous investigations of the hot water have shown it to have a temperature of 135 to 145 degrees F., and to have an extremely low mineral content. In 1904, the Secretary of the Interior authorized Dr. Bertram B. Boltwood, of Yale University, to analyze the water, and he reported that,

"(1) The waters of the springs on the Hot Springs Reservation are all radioactive to a marked degree.

"(2) The radioactivity of the waters is due to dissolved radium emmanation (a gas) and not to the presence of salts of radium."

PHYSIOLOGIC STUDIES

To correlate the findings on analysis of the water with the excellent clinical results observed in various diseased conditions, the writer made a series of observations to determine what changes are brought about in the human body by a Hot Springs bath. Space will not permit a detailed discussion of these investigations, but the following facts were established.

1. Immersion in a Hot Springs bath of ninety-eight degrees for ten minutes will cause a rise in body temperature of at least one degree.

2. A person who has had a vapor bath of three minutes will show a rise in temperature of from two to four degrees above normal. This pyrexia gradually subsides in about four hours.

3. Coincident with the rise in temperature, there is an increase in the leucocytes of from two to four thousand per cubic millimeter with a ten per cent increase in the polymorphonuclear cells. Parallel estimations of the opsonic index show it to be about 6:1, i. e., about doubled.

4. That the increase in leucocytes was not due to the mere concentration of the blood solids was determined by parallel estimations of the plasma volume; the plasma volume was kept practically constant by giving the subject fluids to make up for the dehydration due to perspiration.

5. The theory is that the rise in body temperature is due to the increased cell activity caused by the radium emanation known to be in the water; the greatest rises in temperature were noted in the vapor baths because of the ease of absorption of these substances by inhalation into the pulmonary circulation.

6. It is assumed that the baths are effective in toxic conditions, either bacterial or metabolic, on account of the leucocytosis and increased phagocytic power of the blood. The same would hold true of debilitating nervous conditions by increasing the patient's natural resistance.

7. The waters have an extremely low mineral content and are consequently effective in producing diuresis and promoting elimination through the kidneys. This has been shown to be of value in the treatment of syphilis by enabling us to use three to five times the usual quantity of mercury and salvarsan without producing renal or gastrointestinal irritation. The advantage to the patient of intensive antisyphilitic treatment and early sterilization is obvious.

NATURE OF DISEASES TREATED

Experience and careful observation have shown that the beneficial effects of the natural thermal waters of Hot Springs, Arkansas, are due, in all probability, to the action on metabolism and elimination, and that the medical conditions most benefited are those in which the disturbance is due to toxemia, either of bacterial or metabolic origin.

Under the first heading may be classed the infectious rheumatic diseases (both gonorrheal and acute articular), syphilis and malaria. The second group includes gout and chronic arthritis, neuralgia, all forms of nephritis, chronic skin diseases, especially the squamous varieties, and chronic cardio-vasculorenal disease with increased arterial tension.

Benefits may also be expected in anemia and other diseases of the blood and blood-forming organs, diseases of the ductless glands, and catarrhal conditions of the gallbladder, bile passages, and gastro-intestinal tract.

The baths are distinctly of no value in all forms of tuberculosis and malignant neoplasms.

Like the poor, the skeptic is always with us. He is the man who maintains that tuberculosis can be treated just as effectively in the crowded tenement district in New York as it can be in New Mexico. He also is the man that maintains that the change and the rest accounts for the remarkable improvements and cures which are clinically observed in Hot Springs. But is it not unfair to cast aspersions on the intelligence of almost 200,000 people annually to insist that they all are deluding themselves into thinking that they are improved physically after having taken a course of the baths here?

It is earnestly hoped that the few foregoing remarks will give the members of your esteemed organization a little better insight into the value of the baths at Hot Springs, Arkansas, as a therapeutic adjunct in certain diseased conditions.

BLOOD PRESSURE AS RELATED TO TUBERCULOSIS*

W. H. CRYER, M. D., Deming, N. M.

In taking up the discussion of this subject it will probably be well in the beginning to consider the factors which enter into the maintenance of normal blood pressure. These are differently classified by the various authors, but briefly they may be summed up as follows; (1) the pumping action of the heart, (2) the resistance offered by the blood vessels, (3) the general body musculature, (4) the vasomotor nerves, and (5) the volume and viscosity of the blood.

In pulmonary tuberculosis these factors are all more or less disturbed with consequent lowering of the blood pressure, depending of course on the stage of the disease and the degree of toxemia present.

While there seems to be some difference of opinion as to the definite physiological reasons underlying this

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condition, all writers are agreed that such is the case, not only in the early cases, but also in the so-called pre-tuberculous state.

In view of this we should probably place more value on the finding of a low blood pressure in the suspected cases of tuberculosis in which we are unable to elicit any definite physical signs in the chest, or even in the absence of any elevation of temperature or other symptoms usually present in the early or incipient cases.

While we must admit it is a very serious matter to make a diagnosis of tuberculosis in an individual in whom we cannot be sure such a condition exists, yet, in the presence of a lowered blood pressure along with the symptoms of langour or general malaise usually accompanying a decreased arterial tension, it is far better to advise the patient of the possibility of a pulmonary lesion and keep him under observation for a reasonable length of time, rather than turn him loose by telling him we can find no definite evidence of disease, and have him return at a later date, or fall into other hands with a well-developed tuberculosis, which will require a long period of treatment.

Sewall, in an article in the January, 1920, American Review of Tuberculosis, entitled "On Occult Tuberculosis", very vividly described such a condition as a definite pathological entity differentiating it from active clinical tuberculosis.

After observations on over 2000 cases over a period of about one and a half years, he calls attention not only to hypotension in these cases, but also to the effect of assuming the upright position after lying supine, on the different phases of their pressure. He says, "Vascular hypotension is distinctly the prevailing character of the blood pressure in these cases. But the most significant feature is the abnormal lowering of pulse pressure and its tendency to progressive subsidence when the erect posture is assumed. This may be due to inordinate fall of the systolic or to rise of diastolic pressure in the upright as compared with the recumbent position." The value of these observations is as readily apparent as is the necessity of keeping this class of cases under observation.

Faught, in his work on blood pressure, quotes Lauder Brunton as stating that hypotension may be a guiding sign before any physical sign is found in the lungs, and Haven Emerson as emphasizing that it is equally as important to search for hypotension as for pulmonary signs. Cook also, as saying, "When low blood pressure is persistently found in individuals or families it should put us on our guard for tuberculosis." Faught adds, "Many cases of so-called idiopathic low blood pressure have later developed the importance of these observations by showing after a longer or shorter time signs of pulmonary involvement."

Fishberg in his recent book on "Pulmonary Tuberculosis" says that hypotension in this disease is evidently due to the toxic effects of the metabolic processes of the tubercle bacillus, as an injection of tuberculin is generally followed by a decided fall in the blood pressure. He further adds, "My own experience has brought me to the conclusion that in cases presenting obscure symptoms and signs of phthisis, when accompanied by a low blood pressure, the diagnosis may be safely made; conversely, I always hesitate in cases with high arterial tension, excepting in persons over fifty years of age. But even in these high pressure is rare in phthisis."

The above authors, together with Haven Emerson and other observers, state that arterial hypotension is almost universally found in advanced cases of tuberculosis, and that it is present in almost all moderately advanced cases, and in early cases in which there is marked toxemia, except when arteriosclerosis, nephritis or some other condition complicates the tuberculosis and causes a normal pressure or hypertension.

They believe also that prognosis can be as safely made on the rise or

fall of blood pressure as on changes in the pulse or temperature. In other words, a case which from time to time shows a persistent or progressive hypotension is very likely to have an increase in his symptoms and physical findings with an extension of the lesion in the lung, and consequently very slight prospect for improvement, while one who shows a gradual increase to normal in blood pressure usually progresses favorably to a final recovery or arrestment.

Giese believes that the toxemia of tuberculosis lowers the blood pressure and has observed that this condition seems to go hand in hand with an increased pulse rate in the septic cases, while if after exercise the pulse remains low the patient is probably not suffering from a septic tuberculosis. In this view the writer is in full accord, having collaborated in these observations.

Most observers agree that the diastolic pressure is less affected in tuberculosis than the systolic, yet it should be carefully noted, as a very markedly reduce pulse pressure indicates a weak failing heart, due probably to the toxemia from the tuberculous infection.

This, together with the variations of the systolic pressure, affords a very safe guide as to the amount of exercise which may be permitted in tuberculous individuals.

Peters and Bullock, after making very careful studies along this line, report in the Medical Record, September 14, 1912, that their excellent cases stood exercise remarkably well, gradually working up to two hours morning and afternoon, with no change in pressure or harmful results. Other cases, however, in not such good condition showed varying decreases in pressure immediately after exercise, and after an hour's rest. The deleterious effect of exercise on these cases was further borne out by other symptoms as fatigue, dyspnea, and rapid heart action.

They adopted the rule that when a man showed a drop of six or more mm. Hg. after rest, or a marked drop on returning, even though this disappeared after resting, they decreased the exercise, but if there was only a slight drop on returning the same exercise was repeated the following day, or until an even standard was maintained, when the exercise was increased. This plan was followed with the gratifying results noted above in their better class of cases.

In regard to the effect of hemorrhage on blood pressure in tuberculosis there seems to be some diversity of opinion, some observers reporting that there does not seem to be any connection between the two, while others report that the pressure is increased for a period of from two to three days before the occurrence of the hemorrhage, and that certain drugs as calcium chloride and adrenalin are contraindicated because of their tendency to increase arterial tension.

As has been stated before, a rise in blood pressure goes hand in hand with clinical improvement, and some observers have attributed this improved pulmonary condition to the increase in blood pressure. Pottenger, however, disagrees with this view, and while he admits that the increased arterial tension causes a feeling of well being and in that way furthers his improvement, he believes that it is a result of, rather than a cause of his improvement, which has in fact been brought about by improvement in nutrition, increased nerve tone, better heart and respiratory action, with a consequent improvement in the pulmonary condition. This, it seems, is the most rational explanation.

There is possibly some question as to whether any direct treatment is indicated toward the elevation of the lowered blood pressure in these cases, but as it is claimed that improvement in subjective symptoms follows the elevation in pressure, and persists if it can be maintained at a higher level than before such treatment was instituted, it may be tried and its effect carefully noted.

Such measures are abdominal massage, adhesive straps or abdominal supports which will cause an increase in intra-abdominal pressure, thereby forcing the blood from the splanchnic area toward the heart, also drugs which act directly on the heart or blood vessels by raising blood pressure, as digitalis, caffeine citrate and adrenalin. The effects of the latter, however, should be very carefully watched from day to day, and dosage regulated according to therapeutic results.

The more rational and safer plan, however, in my opinion, is to follow the usual well recognized methods of treatment, looking to the lessening of toxemia and upbuilding of the patient's general condition to bring about the increase in pressure.

In conclusion I would like to cite one case of high blood pressure in a tuberculous individual which has come under my observation.

Male. Age 53. Family history negative. Gives history of chancre in 1908, which was cauterized and healed promptly. Diagnosed as syphilis and was given internal treatment for three or four months. No secondary or tertiary symptoms. Had influenza in 1919, from which he apparently fully recovered. Enjoyed good health until 1921, with exception of frequent colds. During that year began to have a feeling of languor, lost appetite and later developed a cough which soon became productive. In December, 1921, had one four-ounce hemorrhage. Early in 1922 had dizziness and head noises which were his principal symptoms, and were not accounted for by ear examination. Never any temperature elevation. Wassermann was negative. Urine negative on repeated examinations, except for a few granular casts found one time only.

Physical examination showed well developed man apparently in fair health. The right chest showed dullness to third rib and sixth dorsal spine, with harsh breathing and a few indefinite fine rales after cough over dull areas. The left chest showed dullness above clavicle and to fourth dorsal spine, with similar findings on auscultation. The heart was not enlarged to percussion and was in normal position. No murmurs or bruit heard.

The history and physical signs in this case considered jointly strongly indicate tuberculosis, though the physical signs alone were not conclusive; that is, were probably no more marked than are found in many old cases of bronchitis in persons of his age. As he had twenty consecutive negative sputum examinations, we were somewhat in doubt for a time as to whether he did have tuberculosis, especially as he had a blood pressure of 280, which might well have accounted for the pulmonary hemorrhage; however, on the twenty-first sputum examination one tubercle bacillus was found on the entire slide. On the following day one to three were found in many fields, and on the third day one to two in scattered fields. This, of course, settled the diagnosis.

Abbott, of Fort Bayard, has also had one case of tuberculosis who had a pressure of 230 at intervals, with a normal pressure in between. In his case no cause for this condition of repeated high pressure could be found, while in the first case it was probably due either to syphilis or nephritis.

In this connection, in a series of fifty-six cases of tuberculosis in persons over fifty years of age and in all stages, I have found the average systolic pressure to have been 121, the lowest being 88, while the highest was 230.

The two above mentioned cases, I think, show that we can have tuberculosis and high blood pressure associated, and that in the presence of signs and symptoms with a suggestive history, especially of hemorrhage, the suspected case with a high pressure should be considered as tuberculosis, and treated as such, until proven otherwise.

THE TENDENCY TOWARDS FADDISM IN MEDICINE*

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Our knowledge of the science and art of what we broadly term "medicine" dates back to earliest antiquity. Points learned from observation and experience of injuries and diseases were not forgotten, but were very likely passed on by word of mouth, even before there was a written language. New treatments were no doubt tried empirically, without

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known indications, as causes were not well known, and indications were learned only by successes and failures.

By the time of Hippocrates, 400 B. C., a great deal had been learned, in fact, a careful perusal of the authentic writings of Hippocrates shows a surprising amount of medical knowledge for so early a date. For some centuries after that his teachings were used almost blindly as authority, and comparatively little effort was made towards advancement by original observation and investigation.

By studying the history of medicine we can follow the onward progress. One of the outstanding features, easily noted, is that new discoveries were put into extensive use, and by successes and failures their true value determined. Some of the methods were used to great excess and long after they should have been dropped, such as blood-letting, but, after all, the men of those days did not have the scientific foundation that we have and future generations might say the same thing of us. Those men were enthusiasts, as we are, and acted according to their best judgment.

This taking up of new discoveries and using them, even to excess, is, and probably always has been, characteristic of advances in all lines of work, more so now than at any other time, on account of greater facility of communication. A new method is discovered and used at first only for the original condition, and later tried in numerous other conditions, with variations in the method and instrumentation. This excessive use determines its true value and limitations, and frequently suggests new and even more valuable methods.

We have recently had a very interesting example of this in the discovery and use of insulin. The isolation of insulin was the culminating event in work covering a number of years, and was only made possible by it. Scientific research proved that it should be of benefit in diabetes, but extensive clinical use alone can determine its true value and limitations.

This general train of events can be easily followed by studying the history of the various sciences, such as chemistry, physics, astronomy and biology. Of course, the more exact the science, the less are we dependent upon excessive use to determine the value of a method. This is the way that scientific advancement has usually occurred in the past. A new discovery is dependent upon previous accumulated knowledge, and is impossible independently of it.

It is difficult to select just the right word to express the above train of facts. The word "fad" implies something that is evanescent and of no particular value, while this is usually not the case with new methods that are used to excess. They practically always, at least at the present time, have to demonstrate value before they are extensively used. When the newness has worn off and limitations have been determined, the method takes its place with others, on its merits, and general attention is directed to something else. We might almost say that these new methods become the fashion. I will retain the word "faddism," however, as it expresses fairly well what is meant, although it is not perfectly accurate. I wish it to be clearly understood that I consider this free use of new ideas beneficial, as by this means we the more quickly determine their true worth by their successes, and their limitations by their failures.

Many of the great discoveries in medicine have been extensively used from the first, and have never received the setback that most methods have after an initial overuse. This is, of course, due to these particular methods being of great value, their use constantly finding new applications.

At times methods originate that have no true value, and these are sometimes taken up even by a few physicians. One of these that was perpetrated many years ago was

known as the "Thompson cure." It was to the effect that as long as bodily heat was maintained a disease could not become dangerous and the patient could not die. However, patients did die in spite of being constantly wrapped up in hot blankets. Most of these wild ideas have emanated from quacks, who from ignorance or dishonesty, have by means of them exploited the public for their selfish purposes. The American Medical Association is giving full publicity to these individuals and their methods, and has thereby benefited the public to an incalculable extent.

I will bring up briefly a number of advancements in medical knowledge that, as we might say, have received intensive attention by our profession. They will readily show that this, as a whole, has been beneficial. Injuries to individuals have, of course, occurred at times, but they have diminished in frequency as indications have become better known. This is after all an unfortunate, but necessary, factor in the improvement of certain lines of medical work. There is no use detailing the vast number of ideas and methods that had no particular value or were harmful, which were exploited by the ignorant or dishonest for questionable motives.

The early work with gastric analysis opened up a very fertile field for the clinician, who had always had difficulty with obscure stomach cases, both those in which the trouble was evidently gastric, and those in which the symptoms were secondary to other than the stomach itself. This is a valuable method. Both positive and negative findings are of value when taken in connection with other data. The fact that most cases with gastric symptoms are caused by conditions outside of the stomach by no means renders the method useless. In recent years there has been a tendency to minimize its value. It is only one of a number of methods in digestive work, but forms a valuable link in the chain. In the earlier work with gastric analysis undue clinical importance was frequently given to the amount of hydrochloric acid and pepsin in the stomach contents. It was easy in treatment to neutralize an excess, and supply a deficiency or absence of these ingredients. Frequently symptomatic relief was obtained without materially altering the causative pathology. This was pushed to an excess, and greatly encouraged by the manufacturing drug companies, in fact, the latter are still encouraging it.

Gastric lavage was used excessively for some time, but from it emerged a more accurate knowledge of its value and limitations. The great advance in general digestive diagnostic methods has shown the uselessness of local treatment when the primary seat of the trouble is outside of the stomach, unless for symptomatic relief. It is very likely that, at the present time, lavage is used more by surgeons following operations, than by a gastro-enterologist in the office treatment of chronic digestive diseases.

Bier's hyperemia treatment received an enormous amount of attention at one time. It was originated by a man of great medical knowledge and experience, and was along sound scientific lines. Good results were obtained in many cases that were either extremely difficult to cure or hopeless without it. It gradually dropped from the active consideration of the medical profession, and is only little used now.

During and just after my student days there was an enormous amount of radical surgery done on the female generative organs. Extirpation was especially practiced on the ovaries, but the uterus was far from neglected. In view of present-day knowledge of correct procedure much of this was unnecessary. A tendency to conservatism exists now, owing to bad physiological results and what we have since learned of the value of the ovarian internal secretion. Clinical experience has been a valuable factor in enforcing this conservatism.

With the development of bacteriology has occurred a gradually increasing knowledge of defensive factors against infections. Toxins in dead cultures, or vaccines, have been used to stimulate resistance both when infection was present, and in its absence as a preventive. A great amount of good has resulted, but their use has been too widespread, as indicated by numerous disappointments. Shot-gun and irrational usage has tended to bring a wonderful advance in medical science into partial disrepute. In digestive work the clinical findings indicate that whether or not the chronic cases originate as an infection, sooner or later the factor of bacterial growth on the tissues involved is one that has to be considered both in diagnosis and treatment. Owing to the large number of bacteria in the gastro-intestinal tube and their character, this secondary infection is from the ordinary bacteria of infection. Frequently the use of an active mixed vaccine is beneficial, provided small doses are used at first and gradually increased, and then maximum doses given as long as the patient is under observation. This is of course supplementary to, but should not take the place of, other treatment. I believe that this plan is not being used frequently enough. It is hard to say in a definite case just what the vaccine has done, but it is along sound lines and worth using. What is true of digestive diseases in this respect is true, to varying degrees, in other systems of the body.

The work of Metchnikoff with buttermilk and lactic acid bacilli deserves a great deal of credit. Any one who has carefully read an account of his life and work must fully appreciate what he has accomplished.. His buttermilk idea was pushed to great excess, through no fault of his, and numerous failures caused the pendulum to swing too far back. During this period even dry tablets of lactic acid bacilli were used. This was encouraged by the drug companies that made the tablets, and brought them in a considerable revenue. Recent work has shown that the implantation that occurred was of the bacillus acidophilus and not by the lactic acid bacillus, but it seems to me that this does not seriously detract from the value of his work. The reduction of intestinal toxemia, in cases in which it was formerly impossible, was certainly a great advance. His work stimulated research by others, our present knowledge of implantation with the bacillus acidophilus, lactose and dextrin being largely the result. Our clinical control along this line is constantly increasing.

With improvements in intestinal work came the use of agar and liquid petrolatum in cases of stasis. This was along good lines and many good results were obtained. Of course, we know that constipation is frequently a result of such conditions as gall bladder infection, appendicitis and other abdominal inflammatory lesions. In these cases results were disappointing, although these substances helped symptomatically in many instances, even then. They were frequently used indiscriminately and when improvement in the condition could not have been expected. They did no harm except to postpone, at times, the institution of proper treatment.

Studies in the field of immunity revealed the presence of certain protective chemicals in the blood, and these have received a great deal of attention from pathologists and clinicians. One of these was of special interest to us in the southwest on account of our frequent contact with tuberculosis patients. An effort was made to estimate the resistance of a patient to tuberculosis by the opsonin content of the blood serum. Practically every tuberculosis sanitarium in the west did this work, and those giving tuberculin tried in many instances to govern the dose injected by the opsonin content of the serum taken just previous to the injection. Experience has shown the above to be unsatisfactory, and the method

has been abandoned. This was determined by excessive usage at the hands of numerous experts.

The subject of focal infections is one of special interest to all practicing physicians. It constitutes an extremely valuable advance in clinical medicine. The importance of focal infections was suspected by clinicians long before bacteriologists and pathologists proved it by laboratory work. It has cleared up obscurities in diagnosis and saved thousands of lives. It was so successful that it was pushed to an extreme and too many cases were, so to speak, seen through focal infection lenses. Many operations that did not benefit were performed to relieve such suspected foci. This is especially true with regard to the removal of the teeth. An abscess at the root of a tooth can cause infection elsewhere in the body, but it is another matter to say that it has done so in a definite instance. X-ray films should indicate whether or not a tooth abscess is present. Nevertheless, without doubt, too many sound or slightly diseased teeth that were not producing systemic trouble, were pulled which should have been left in to use in chewing.

About twenty-five years ago it became known that the x-rays, by means of photography, could show up differences in the density of tissues. This was first used in cases of fracture and the finding of foreign bodies, such as bullets. From that time on to the present their practical use has broadened until nearly every line of medical work has been influenced. Their use is of great importance in diseases of the digestive system. They have made some very obscure points in diagnosis comparatively simple, and have given us a greatly improved understanding of this work. Their use is very extensive, but not too much so. The value of the x-ray examination is so generally known that many of the laity seem to think that it will clear up all difficulties of diagnosis in digestive cases, and will take the place of a careful history and clinical examination, and almost miraculously even solve therapeutic difficulties. Of course we know that this is not correct, and that after all it is only one of a number of valuable methods. When its use in the treatment of cancer began the public, encouraged by hopes, expected it to do miracles. Some cures were made, but as a whole it was a disappointment. Even the latest treatment of cancer by this means leaves a great deal to be desired. This is true even when the malignant growth is in a location that can be readily reached by the x-ray. Most malignant growths are not so located. As the work with radium developed marvelous results were expected of it also, but they have run about parallel with those obtained by means of the x-ray. The treatment of cancer by these two means constitutes a great advance over previous methods. Very extensive use has given us a much better understanding than otherwise would have been possible.

Vitamines were brought to our attention by the work in dietetics. Preparations purporting to contain them were manufactured and extensively advertised to the profession and laity. There was a tendency to use them in a large number of conditions. There were a few successes, but the results as a whole were very disappointing. At the present time we do not hear much about vitamine preparations. When vitamines are used it is in cod-liver oil and the various foods. Excessive use readily cleared up this question.

In the past few years the importance of the internal secretions has been more and more impressed upon us. There has hardly been a line of medical work that has not been greatly influenced by advances in this field. There has been a tendency to carry this to an extreme. The medical profession has been widely circularized by drug firms making various endocrine preparations, and hardly a large city newspaper is published

that does not daily carry quack advertisements praising the virtues of one of these preparations. This naturally leads to both excessive and irrational use. I do not wish to minimize the value of the preparations made by the responsible drug firms or the results obtained when they are indicated. The length of human life has been considerably increased by the combined advances made in medicine. There has so far not been discovered a method of greatly hastening this increase. However old people, particularly old men and those about to get old, are constantly reaching for straws. One of these straws is the work relating to the internal secretion of the testicles, including operations on that organ and the implantation into man of one taken from another species. It is rather early yet to say what the ultimate result will be, but in many cases at least, the primary result has been good. This is rather sensational in character and the daily papers have lost very few opportunities to give publicity to such a valuable item of news. This appeals strongly to the public and to some doctors, and the work promises to grow rapidly. In this instance the daily editions of the city papers carry advertisements which are little short of obscene.

Developments in our knowledge of digestive physiology and pathology and the frequency of abdominal operations have led to a better understanding of liver conditions, including those affecting the gall bladder. Even with the frequency of operations some points regarding operative procedure upon the gall bladder have even now not been decided. These operations are increasing in frequency and this will help in determining obscure points. I do not believe that it is pushed to excess. The method of liver drainage by means of the duodenal tube is a very valuable one in selected cases. It has increased our knowledge of liver physiology and has broadened our means of helping in these cases. It has certainly been used to excess and many times when there was no definite indication for it. The cases with altered liver physiology are so obscure that we generally cannot make a positive diagnosis by ordinary methods, and it is justifiable to use a procedure of this kind when we suspect such a condition. This free use in doubtful cases will give us a better understanding of its limitations.

At one time or another in the fairly recent past the several digestive organs have received special general notice. The physiology of the small intestine is not as well understood as it should be, and the pathological conditions affecting this organ are even less understood. The above applies to both the digestion of food and bacterial growth with its results. Our knowledge of secretin, the internal secretion of the small intestines, is very meagre. It has not received the attention of the physiologists that it deserves, and as far as I know its possible relation to pathological conditions has received practically no attention. I believe that the turn of the small intestine to be studied thoroughly, as have other organs, will come soon, and when it does possibly some obscure and dangerous diseases will be much better understood than they are at present. Certainly intensive study from all angles will be interesting and valuable.

The art of medicine cannot fairly be compared with any other line of professional work. The factors entering into it are variable, and many are absolutely beyond our control. We must use everything that is known for the benefit of our patients, and that freely, when we think that good may reasonably be expected, and let the results determine future usage. This free and fair trial has proved of great value in the past, and will continue to do so in the future.

THE DOCTOR AND THE PUBLIC*

H. A. INGALLS, M. D., Roswell, New Mexico.

During the Spanish-American War our little army was badly defeated by typhoid, malaria, yellow fever and dysentery.

The World War demonstrated what the medical profession can do, if given the proper recognition that they may have authority to institute the necessary laws and regulations for the prevention of disease. That which was acccomplished in the army is also possible in civil affairs if the same rules and principles are accepted by the constituted authorities and the general public.

The day for considering the doctor a necessary evil has passed, and it is our duty so to educate our citizenship.

For years the medical profession has sounded the slogan that "an ounce of prevention is worth a pound of cure", but this homely truth the laity has never been able to grasp, hence the various cults that spring up over night to graft upon the uneducated for a time and then to fade away, only to spring forth again under the guise of a new name with the same old graft.

Our brethren of the dental profession have for a number of years been teaching prophylaxis, and I am glad to see they have accomplished much good, but comparatively few have had the truth driven home so that they give proper attention to this particular feature.

The handwriting on the wall tells us we must awaken if we are to do our full duty, or else we will eventually become hirelings and slaves to federal and state medicine.

For the existence of the present state of affairs we have no one to blame outside of our profession. We have known what to do, and how to do it, yet we have remained asleep. Let us now awaken to our duty and educate the public at large. As I see the situation, we should introduce into our libraries and schools the A. M. A. publication "Hygeia" and arrange for a series of lectures to be given from time to time for the education of the public.

History tells us, and these points should be brought home, that failure to observe the known rules of hygiene always spells disaster, as is well illustrated by the failure of Arnold's campaign against Quebec during the Revolutionary War. Had this general taken into consideration the advice of the medical officers and accepted their recommendations, the campaign would have been a success and the map of America doubtless would have differed from what it is today.

Just as failures are the result in armies, so, too, failures occur in private life from the neglect of the known laws of health.

The work of Reed and others in advocating a thorough physical examination of patients confined in our state and county hospitals has resulted in the restoration to duty of many patients previously considered hopelessly insane.

We profit more by our mistakes, and the mistakes of others, than from anything else.

We move along blindly, making error after error, and do not have the moral courage to call a halt.

With modern, well equipped laboratories near at hand, and the cheapness of satisfactory x-ray equipment, there is no reason why the general public should not have the matter of preventive medicine brought home to them, nor why we should not educate them in the matter of routine examinations, at a fair financial return to the medical profession.

The physical examinations made at the entrance of the United States into the World War revealed a pitiful physical condition of the youth of our land. Had routine examinations and corrective exercises and treatment been introduced twenty-five or thirty years ago, the physical picture would

(*Read before a meeting of the Eddy County Medical Society at Artesia, New Mexico, July 25, 1924.)

have been changed and the rejections for service been reduced to a respectable minimum.

Let me here emphasize the fact that we, and we alone, are to blame for this deplorable condition. If allowed to continue, this great nation of ours must fall as the result of gradually increasing mental and physical defect of its citizenship.

Here at home one but has to study the physical records of the New Mexico Military Institute to learn what may be accomplished as the result of physical examinations and corrective exercises and treatments. Substandard youth develops into vigorous manhood.

If proper understanding on the part of the general public is secured these same results would be forthcoming in every city, town, village and rural community throughout the length and breadth of our land.

We must not only improve in our relationship to the physically perfect, but must give our services to the substandard and the sick. Those not ill must be taught to continue in health by regulation of diet, exercises and rest, and correction of any departure from the normal.

The incomplete physical examination and haphazard diagnosis must be relegated to the past, to appear no more. Our sins of omission are far in excess of commission, yet the latter is far too frequent.

As a point of interest, and to show that we of New Mexico are not alone in this field of criminal carelessness, I have decided to cite the following case:

A young lady of most excellent family was brought to Roswell, under care of her mother and an older sister, upon recommendation of a well known diagnostician who had been called in consultation by the physician who had cared for the family during a period of years. The diagnosis was that of pulmonary tuberculosis, and the climate of New Mexico recommended. I regret to state that the first Roswell physician called into the case by the family to see this patient concurred in the diagnosis given by our confreres in the city of her residence. After a period of a few weeks the case was pronounced hopeless; that nothing more could be done. The patient was discouraged and willing to give up the fight. The older sister, however, desired to make another effort, with the result that the patient consented to our seeing her. The clinical findings were not typical of pulmonary tuberculosis, so a portable x-ray was put into service to aid us. The plate revealed a solid mass involving the anterior mediastinum and a portion of the left lung. An ophthalmic study of the fundi gave evidence of specific disease and the Wassermann, which followed, gave us a 4 plus.

It is almost needless to state that this tuberculous (?) patient made a very rapid recovery, to the wonderment of her family and friends.

After improvement, and when the patient was about to return to her home, the true nature of her condition was disclosed to her, that she might report to her family physician for subsequent examination and treatment.

This case is cited to show the result of an imperfect physical examination. There was nothing at all difficult about the case as regarded either diagnosis or treatment, yet the patient was allowed to approach death's door before indicated treatment was instituted.

Another case which we desire to call to your attention is that of a vigorous man of forty, who was bedridden with "inflammatory rheumatism." The general condition of the patient seemed excellent. An x-ray study revealed the trouble. While the teeth and gums were of most excellent appearance and gave evidence of being carefully kept, the x-ray revealed five infections. Extraction of the infected teeth, with the subsequent drainage, resulted in prompt recovery and restoration to duty.

Literature and our own observation teach that foci of infection in tonsils, teeth, prostate, and gastro-intestinal tract cause a wide range of symptoms, many of them obscure, that render the individual substandard or even bedridden.

If we arouse to action and henceforth do our duty to our clientele and our various communities, to the end that we may have less sickness, and a more vigorous and wealth-producing citizenship, the object of this short article will have been accomplished.

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THE SOUTHWEST MEETING IN PHOENIX

The 1924 meeting of The Medical and Surgical Association of the Southwest will be held in Phoenix on November 6, 7 and 8. These dates have been carefully selected after minute consideration of all other available dates during November.

The meeting will allow members to be at home on election day and in Phoenix for the first day of the meeting. The Arizona State Fair will be held November 10 to 15, so that members and visitors who wish to remain over for that period can do so without loss of time; also it is very likely that excursion rates for the fair can be utilized by our members and visitors.

The clinical programs will be in charge of the Maricopa County Medical Society and will occupy the forenoons of all three days. Phoenix is now well equipped for holding clinical programs, with two first-class general hospitals, each having three major and two specialist operating rooms.

The general scientific program will be in the afternoons. The chairman of the Program Committee is Dr. John J. McLoone of Phoenix; serving with him on the committee are Dr. L. B. Cohenour of Albuquerque and Dr. Willis W. Waite of El Paso. It is announced that the program will have a symposium on industrial surgery and medicine and another on tuberculosis.

It is appropriate, at this time, to present the following extract from the report of the Editor of Southwestern Medicine to the last session of the Southwest Association. A careful reading of this is requested by all doctors in the Southwest district:

The Medical and Surgical Association of the Southwest, because of its strategic position and the influence which it can wield because of that position, is capable of becoming one of the important medical societies of the country.

The Medical and Surgical Association of the Southwest was born of the desire of a number of representative physicians and surgeons of western Texas, New Mexico and Arizona to unify the medical thought and medical activities of a certain geographical district, the real Southwest, in contradistinction to the Pacific Coast, the central West, or the Northwest. Within this geographical district the climate, the natural resources, the industries, the population are similar and the future welfare of all portions of the district are inextricably bound together. This district includes New Mexico, Arizona, Texas west of the Pecos River, and the northern portion of Mexico.

Within this district are three well-organized medical societies, and it has been provided that their members may become members of the Southwest organization without further evidence of eligibility. The Southwest Association by this requirement helps to build up the county and state societies of this district. Doctors in localities where there are no county societies and the doctors of old Mexico are not required to be members

of local societies before entering the Association.

Within the district of the Southwest orgnaization there are more than one thousand doctors, and before we can claim to fulfill our function we must have a membership of at least 500—of whom 150 should come from Arizona, 150 from New Mexico, 100 from El Paso and 100 from old Mexico. By first securing this representative membership, then by elevating the standard of our individual medical work through constant stimulation of our members, by the exhibition of our clinical material, by reports from our organized hospitals, by enlargement and improvement of our journal in order to spread the knowledge of our work where it should be known, we can focus the eyes of the medical world on the Southwest.

These things cannot be accomplished by the county and state societies alone, though these are the first and fundamental requisites. County society activities, hospital staff activities and state society activities are absolutely essential, because they are the units out of which are built more comprehensive and influential organizations.

The medical factors which comprise a local medical organization have their magnified counterpart in the state and district organizations, and if these larger groups do not follow out the general pattern of the primary unit, they will fail of their purpose.

In the local society we have various specialists and general practitioners who meet to compare experiences, in order that those with special knowledge may apply this to general problems, and those with general experience may give this benefit for the limited vision of the specialist. Therefore, in the local society we should have experiences with cases recited, problems introduced for solution, formal and instructive papers given —all for the sole and only purpose that the character of the medical work of the individuals may be improved.

The state society should follow the same pattern in its scientific gatherings, except that instead of dealing with individuals in planning its program, a skeleton is first arranged of the various lines of medical activity of importance in that state—the individuals who report on these activities being of secondary importance. A state society program which does not bring up for review those lines of medical activity which are of chief importance in that state falls short of its purpose and function.

In the district society—such as our Southwest Association—the same pattern is followed, except that we magnify and refine our exhibits, having in mind the possibilities and advantages of spreading our influence beyond our borders. The function of the Medical and Surgical Association of the Southwest, therefore, is to present a continuous pageant of the medical facilities of our district, of our own hospitals and sanatoria, of our own special lines of work, to the end that all of our thousand doctors may be informed regarding the medical progress and medical facilities to be found within our own borders.

Just as we would be interested in studying the personnel of a local medical society, if we contemplated joining it, so we can profitably briefly review the physical factors embraced by the Southwest Association.

New Mexico has about 400 doctors, with more small isolated communities than any other state in the Union. Its principal cities are located at relatively high altitudes, and most of them have won fame as health resorts. Albuquerque has every medical and surgical facility, with Class "A" hospitals, and good radiological and pathological laboratories. There are a number of excellent tuberculosis sanatoria and two government hospitals in the state.

Arizona has about 300 doctors and is notable chiefly for its large industrial hospitals, which should rank first as our contribution to medical progress. In Tucson and Phoenix there are general hospitals, whose staffs embrace all specialties and whose work covers all departments of medicine and surgery, including radiological and pathological laboratories.

El Paso is properly and deservedly regarded as the medical center of the Southwest because of its excellent general surgeons, its capable specialists in various branches of internal medicine, including tuberculosis, its large and first-class hospitals, and its efficiency in medical organization. Located at the northern gateway out of Mexico, it receives much work from that country.

The district embraced within the northern states of Mexico, i. e., the states of Sonora, Chihuahua, Coahuila, Sinaloa and Durango, included in the Southwest Association's territory, comprise a little over 300,000 square miles, or a territory just about equal to New Mexico, west Texas, Arizona and the southern half of California. There are about two and a half million people living there, with between 250 and 300 practicing physicians.

The state of Sonora is about two-thirds the size of Arizona, with about the same population (350,000). It is destined soon to be the agricultural marvel of the world, both irrigation and transportation being provided for within the next two years; it also has extensive forests and mineral deposits. Hermosillo has 20,000 people and Guaymas about 25,000.

Chihuahua, the largest state of Mexico, has 500,000 people, its principal city of Chihuahua having a population of 50,000 and 30 doctors. It has over 5,000 mining properties and two very extensive irrigation systems.

Coahuila has 400,000 people, its principal city of Saltillo having 40,000, with 26 doctors. Its chief products are agricultural, being a great cotton district; it also has immense deposits of silver and gold.

Sinaloa has 350,000 people, its principal city being Culiacan, with 15,000 people (11 doctors); it has the seaport of Mazatlan.

Durango, less than half the size of Arizona,

has 500,000 people; its chief city is Durango, with 50,000 people (30 doctors).

These are the physical and economical factors, together with the medical facilities and needs which necessarily accomapny such factors, out of which the Southwest Association is building its structure.

Witn the completion of the Southern Pacific of Mexico line through Guadalajara to Mexico City, the Southwest will be traversed by two lines connecting directly with the important cities of Mexico.

The Mexican National Railway, with El Paso as the "paso del norte" for Mexico City, passes through Queretaro, Guanajuato, Zacatecas, Torreon, Chihuahua and Juarez, with an alternative route north of Torreon into El Paso.

El Paso is connected directly with Albuquerque over the Santa Fe Railway, with two trains a day each way.

Rich as is the country which the Mexican National Railway traverses, the Southern Pacific of Mexico will open up one which is richer—along the west coast. Over this route there is direct connection from Mexico City via Guadalajara, Tepic, Mazatlan, Culiacan, Guaymas, Hermosillo and Nogales, to all points in Arizona. The line will continue through Tucson, Maricopa and Yuma; with the completion of the proposed main line route through Phoenix, there will be direct connection over that route.

The opportunities which any district medical organization offers to its members are present here in peculiar and significant measure. It is believed that the Medical and Surgical Association of the Southwest has a great and important function, and that it can be of immeasurable benefit to the medical profession of the Southwest, provided they will assist in perfecting this organization into an association of power and influence.

DR. WILLIAM REUBEN TIPTON

(Las Vegas, N. M.)

In the death of Dr. William Reuben Tipton of Las Vegas, which occurred on August 25th at his home, New Mexico has lost a pioneer citizen and medical practitioner, whose passing will be mourned by the entire state.

Dr. Tipton was born in Boone County, Missouri, in 1854, moving to New Mexico in 1860 when but six years old, residing in that state until the time of his death. He received his preliminary education at St. Michael's College, graduating later at Missouri University. During the last two years of his course at the university he took what is now equivalent to a premedical course in chemistry, biology and physics. After two full years spent at the Jefferson Medical College of Philadelphia, he graduated from that school in 1878, and immediately began the practice of medicine in Las Vegas and continued to practice there until his health failed about one year ago.

Dr. Tipton was one of the organizers of the State Medical Society and was a charter member of the Las Vegas County Society and served that society during one term as president. He was further honored, at the Los-Angeles meeting of the American Medical Association by being elected vice-president of that great organization; this honor was greatly appreciated by him.

For many years he was Medical Superintendent of the State Hospital for the Insane. He was at one time a member of the Board of Medical Examiners and a member of the Board of Regents of the New Mexico Normal University. For many years he was president of the United States Board of Pension Examiners. These honors were all well deserved and were borne with proper modesty.

It was the writer's privilege to know Dr. Tipton quite intimately for a generation. He was his consultant at the Santa Fe Hospital for thirteen years, and the writer is deeply indebted to him for assistance and wise counsel during that period. Dr. Tipton stood out prominently for all that was high and noble in his profession. He believed firmly in organized medicine. He was a friend to all worthy doctors and even when he did not hold a high estimate of some member of the profession, he was never known to speak of him to a layman in other than complimentary language. He held to the belief that you cannot injure one member without hurting the whole body.

In the passing of Dr. Tipton the profession of the Southwest has suffered a distinct loss.

EDWIN B. SHAW.

St. Joseph's Hospital

PHOENIX - ARIZONA

Fulfills all the requirements of a Class A hospital

Staff:—Physicians of Maricopa County belong to the "open staff"; other physicians may send or bring patients to the hospital, so long as the staff rules are adhered to.

Staff Meetings:—Are held on the third Thursday of each month from October to May. At these meetings, the clinical work of the hospital is discussed and means for improving the general service suggested.

Records:—The clinical records are compiled and filed in accordance with the requirements for Class A hospitals.

Clinical Laboratory:—Trained technicians work under the direction of a medical pathologist; all routine and special examinations required by modern clinical practice are promptly performed.

X-Ray Laboratory:—Every facility for x-ray diagnosis and high voltage x-ray therapy, this department being in charge of a competent roentgenologist.

With a specially trained dietician working in conjunction with the clinical laboratory, this hospital invites the reference of cases for metabolic studies, particularly diabetic patients requiring the determination of their carbohydrate tolerance and insulin requirements.

Corner of Polk and Fourth Streets

(On Indian School Car Line)

BOOK REVIEWS

THE MEDICAL CLINICS OF NORTH AMERICA, VOL. 7, NO. 4-5-6. January, March and May, 1924. Published monthly by W. B. Saunders Company, Philadelphia.

The writer finds the Medical Clinics of North America one of the best means of keeping up with what is essential in medical practice. For the most part the articles deal with the live problems which are met with in the best hospitals of our large cities. The three numbers here reviewed are fully up to the high standard.

Contributions to the January number are from the University of Kansas. The volume contains over three hundred pages by twenty-two authors. Robert C. Davis has a very sane article on pneumonia. He gives due consideration to rest, air, water and general care, points too often overlooked by the therapeutic enthusiast. Paul F. Stookey gives some very interesting facts on cardio-vascular syphilis, especially as regards the morbid vascular changes. Poisoning by the bacillus botulinus seems frequent enough to arouse the interest of every physician. W. A. Meyers reports a case with recovery by the use of the serum and gives a very good description of the disease. Subphrenic infections are very instructively discussed by Logan Clendenning. Many other articles in this number are equally good.

The March number is by St. Louis physicians and contains much of interest. Englebath informs us that only five per cent of pituitary disorders are due to tumor. He evidently believes in conservative treatment even in the presence of tumor unless it is plainly operable. McKim Marriott holds that parenchymatous nephritis in children is due to focal infection, most commonly staphylococcal in the nasal sinuses. He finds glomerulo-nephritis due most commonly to a streptococcus infection in the tonsils. Tierney has an article on headache, especially of the pituitary type. He does some bold theorizing on migraine, but his results seem to confirm his ideas. Those interested in endocrinology will find no better source of information than the writings of Englebath and Tierney. Charles Hugh Nillson believes the prostate is perhaps the most frequent seat of focal infection in men. One does not need to eat a whole loaf to judge of the excellence of the bread. So these few samples may indicate the nature of the volume, though there are some spots that are not so good.

The May number is the first volume to come from Canada. The contributors are connected with the McGill University of Montreal, which is sufficient recommendation. Dr. Grant Campbell deals with the difficult subject of the heart in pregnancy. He thinks that mitral stenosis, myocarditis and auricular fibrillation are the most dangerous conditions. Mitral regurgitation, aortic regurgitation, aortic stenosis and congenital lesions do not contra-indicate marriage and pregnancy, according to this author. It would seem safer to judge with care what the heart can do regardless of the nature of the lesion. R. A. Peter says that sarcoma of the lungs and mediastinum are common lesions. The mediastinum certainly deserves more attention than it gets. The rest of the articles in this number covering over twenty subjects are, without exception, of merit and practical interest.

G. W.

MANAGEMENT OF DIABETES. By George A. Harrop, Jr., Associate in Medicine, College of Physicians and Surgeons, Columbia University, and Assistant Visiting Physician, Presbyterian Hospital, New York. Published by Paul B. Hoeber, Inc., 67-69 East 59th St., New York. Price $2.00.

The management of diabetes has been simplified by the introduction of insulin, while at the same time a more exact knowledge of physiological and pathological metabolism is demanded of the physician and more care in attending to the details of the treatment is required of him.

The monograph by Harrop supplies to the general practitioner in understandable language the information necessary in handling the diabetic case. The introductory chapters tell what the disturbances are in a diabetic patient and how these are overcome by insulin. The methods of determining the dose of insulin for each patient are described in very simple language, and the various problems which may arise are discussed, and the complications which are most frequently present are treated in a separate chapter. The diet of the diabetic, with many recipes and tables of food values, give the detailed information which physicians and intelligent patient require to continue treatment. Blood and urine analyses are discussed in the concluding chapters, giving the simple tests which the general practitioner can use or which the patient can perform, leaving the complicated procedures which only laboratories can handle untouched.

The book is an admirable one for any physician who undertakes to handle diabetes.

W. W. W.

METHODS IN MEDICINE. By George R. Herrman, M. D., Ph.D., Instructor in Medicine, University of Michigan, formerly House Officer, Peter Bent Brigham Hospital, Boston; formerly Assistant in Medicine, Washington University; formerly Resident Physician, Barnes Hospital, St. Louis. Published by The C. V. Mosby Company, St. Louis, 521 pp. Price $6.50.

This is a manual of the medical service of George Dock, M. D., Sc. D., and is designed to be a practical bedside guide, giving the outline of the minimal requirements for a complete, systematic diagnostic study. It lays down the essentials of emergency handling, scientific study, therapeutic and dietetic management of medical cases, and gives the directions for preservation of the vital data in the record of each patient.

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Mellin's Food . . . . 4 level tablespoonfuls
Water (boiled, then cooled) . **16 fluidounces**

furnishes a suitable diet for temporary nourishment during the acute stages of intestinal disturbances of infants generally referred to by the term,

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While the condition of the baby will guide the physician in regard to the administration of the above mixture, the usual custom is to feed 1 to 3 ounces every hour or two until the stools lessen in number and improve in character. The food mixture may then be gradually strengthened by substituting one ounce of skimmed milk for one ounce of water until the amount of skimmed milk is equal to the quantity of milk usually employed in normal conditions.

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The Manual is divided into five parts:

Part I is made up of administrative methods, rules and detailed regulations to insure prompt, careful, complete and uniform handling of each case. While designed primarily for hospital cases, with suitable adjustment, the outline can be used on any medical case. There are notes and suggestions upon history taking, physical examination and laboratory work. The routine requirements for each type of case, as regards laboratory work, will be found valuable to general practitioners anywhere, and the details of the ordinary clinical laboratory procedures follow immediately after the notations regarding the types of tests demanded.

Part II consists of the special methods of clinical and laboratory investigation applied in a more complete study.

Part III outlines acceptable therapeutic methods with emergency measures and subsequent treatment and management.

Part IV contains approved dietetic methods with practical diet lists.

Part V illustrates recording and graphic methods in the form of a composite history with representative charts of data from the usual types of cases.

This Manual of Methods can be studied profitably by every physician who wishes to study his cases exhaustively and to preserve his records for future reference.

W. W. W.

ST. JOSEPH'S HOSPITAL
(Phoenix)

The St. Joseph's Hospital, conducted by the Sisters of Mercy, at Phoenix, has completed the equipment of the Urological Room. This room adjoins the x-ray department and connects with it through a door. The Urological Room is wired for x-ray current, and the new Morrison table, equipped with Bucky diaphragm, permits of radiographic work upon the table, without moving the patient. For fluoroscopic work during pyelography or cystoscopy, the patient can be readily moved upon the fluoroscopic table in the adjoining room.

With this addition, the x-ray department, with its suite of five rooms, including the high voltage therapy rooms, represents a very complete and modern equipment.

A NEW CHAIR AT JEFFERSON MEDICAL COLLEGE

In recognition of the far-reaching developments of bronchoscopy in the diagnosis and treatment of diseases of the lungs and of esophagoscopy and gastroscopy in the diagnosis and treatment of diseases of the esophagus and stomach, the Board of Trustees and Faculty of The Jefferson Medical College have created a new Chair to be known as the Department of Bronchoscopy and Esophagoscopy. Dr. Chevalier Jackson, formerly Professor of Laryngology in The Jefferson, has been elected to the Professorship of the new Department. Dr. Fielding O. Lewis has been elected to fill the Chair of Laryngology vacated by Dr. Jackson.

THE X-RAY AS AN AID IN THE DIFFERENTIAL DIAGNOSIS OF ABDOMINAL AND CHEST CONDITIONS. Louis Edeiken, M. D., Philadelphia, Pa., Medical Jour. and Record, May 21, 1924, p. 492.

Author discusses certain diseased processes in which the lesion is in one location, with the predominating symptoms in the other. The chief lesions in which the clarifying influence of the roentgenologist is of supreme importance are:

Pneumonia from acute appendicitis, especially in children. On one of the pediatric services of Mt. Sinai Hospital there is a standing order that all children in whom acute appendicitis is suspected shall have an x-ray examination of the chest to eliminate pneumonia. The matter can frequently be settled by fluoroscopy.

Empyema from subprenic abscess, the roentgen pictures in these conditions being totally different.

Traumatic pneumo or hemopneumothorax from intra-abdominal perforation and hemorrhage. In cases of injury with shock and contusion there may be pain, tenderness and rigidity of the upper abdomen from thoracic injury.

Pleurisy from cholecystitis; the pain may be very similar, and fluoroscopic examination may reveal the characteristic findings of pleurisy, while a more detailed examination may determine regarding gallbladder disease.

Cardiac and aortic lesions from suspected lesions of stomach and duodenum; cardiac and aortic disease may simulate closely organic lesions of stomach.

Lower esophageal conditions from those in the stomach.

Tumors of liver and spleen from lesions in lower lobes of the lungs. W. W. W.

TO HOLD REUNIION BANQUET

Alumni of The University Medical College, Kansas City, Missouri, will hold a reunion banquet Wednesday, October 15, 1924, at 6:30 p. m., in the banquet room of the Kansas City Athletic Club, Eleventh and Baltimore, Kansas City, Missouri.

During the noon hour of the same day the various classes from 1882 to 1913, inclusive, will hold individual class reunion luncheons.

The reunion banquet is a part of the program of the Kansas City Clinical Society, which will convene in Convention Hall, Kansas City, Missouri, October 13-18, 1924.

Weed Hay Fever



THE Late Summer and Early Autumn Type of Hay Fever is caused by many of the common weeds, as–Ragweed, Russian Thistle, Sage Brush –the species differing widely according to locality. To assure specific treatment diagnostic tests are essential. To assure preseasonal treatment early diagnoses should be made,–otherwise the less desirable, though often beneficial, coseasonal treatment will be involved. List of late flowering weeds, showing regional distribution and time of pollination, sent on request.



IANT RAGWEED *Ambrosia trifida*

RUSSIAN THISTLE Salsola pestifer

SAGE BRUSH Artemisia tridentata

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Zsigmondy determined that pure gelatine is the most powerful of the protective colloids. (Zsigmondy, Z. Anal. Chem., 40; 1901).

In the recent research of the specific uses of pure gelatine in the dietary, conducted by T. B. Downey, Ph. D.—Fellow at the Mellon Institute, University of Pittsburgh, it was conclusively proved by standard feeding tests that 1% of pure plain gelatine dissolved and added to cow's milk, will increase by 23% the nourishment obtainable from that milk.

This dietary discovery gives gelatine inestimable value in infant feeding because it promotes the complete absorption of the milk nutriment with the minimum of digestive effort and goes a long way toward the prevention of colic, regurgitation, and bowel disorders in the bottle-fed baby.

The prescribed formula for modification of milk with gelatine is as follows:

Soak for ten minutes one level tablespoonful of Knox Sparkling Gelatine in ½ cup of cold milk taken from the baby's formula; cover while soaking; then place the cup in boiling water, stirring until gelatine is fully dissolved; add this dissolved gelatine to the quart of cold milk or regular formula.

FREE—To Physicians and Hospitals

We shall be glad to send free, upon request, scientific reports on the health value of gelatine with additional copies of the above formula for milk modification, together with valuable recipes for gelatine dishes useful in the dietary.

In addition to the family size packages of "Plain Sparkling" and "Sparkling Acidulated" (which latter contains a special envelope of lemon flavoring), Knox Sparkling Gelatine is put up in 1 and 5 pound cartons for special hospital use.

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Free from harmful acidity, artificial coloring and synthetic flavoring.



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That he treated her for rheumatism when she had a broken wrist, as a result of which she has lost the locomotion of her right forearm, is the complaint of [redacted] who yesterday filed suit in circuit court against [redacted], physician, demanding $10,000 damages. The plaintiff alleges that because of the negligent treatment she is now so crippled that she cannot keep employment. The suit is filed by Attorney [redacted]

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Be instant—in season out of season

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The Original

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by
C. M. SAMPSON, M.D.

PHYSIOTHERAPY

Places and Dates
Salt Lake City, Utah,
Sept. 29-Oct. 4, 1924.
Denver, Colorado,
Oct. 6-11, 1924.
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Oct. 13-25 (2 weeks).

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THE TIME is not long—only 5 days of intensive work, covering the field most thoroughly and scientifically of DIATHERMIA, ACTINOTHERAPY, X-RAY THERAPY, STATIC MODALITIES, MORSE WAVE GENERATORS and HYDROTHERAPY.

THESE COURSES are proving a success and are attended by all men in various specialties of Medicine and Surgery. Only **Ethical Members** are permitted to attend—Aids, Nurses and Technicians must be vouched for properly. Price of course—$25.00. When registering send $5.00—balance at first lecture. Do not forget to specify which course you wish to attend.

Applications for any course must be sent to the

Secretary of Sampson's Lecture Course

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X-RAY PLATES. Paragon brand for finest work.
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COOLIDGE X-RAY TUBES. 5 styles, 10 or 30 milliamp.—Radiator (small bulb), or broad, medium or fine focus, large bulb. Lead glass shields for radiator type.
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DENTAL FILM MOUNTS. Black or gray cardboard with celluloid window or all celluloid type, one to fourteen film openings. Special list and samples on request. Either stock styles or imprinted with name, address, etc.
DEVELOPER CHEMICALS. In bulk or ½, 1, 2 and 5 gallon sizes. Paragon, Eastman or X-Ograph.
INTENSIFYING SCREENS. Sweetbriar, Patterson or T. E. screens alone or mounted in cassettes; reduces exposure from 6 to 18 times. All-metal cassettes several makes.
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DR. WILL WILKINSON of Phoenix has returned to his practice after a month or two spent on the coast, where he and his family went by auto, visiting friends and picking up information along the way on the subject of radiation therapy.

DR. L. D. DAMERON of Phoenix, City Health Officer, has returned to his work, after a vacation spend on the coast.

DR. HARRY R. CARSON of Phoenix has returned from a postgraduate tour of the east, where he studied pediatrics at Johns Hopkins and visited several clinics where the latest ideas in anesthesia are being used.

DR. R. J. STROUD of Tempe, Arizona, is wearing an ineradicable smile, following the birth of a daughter recently.

DR. S. H. WATSON of Tucson passed through Phoenix recently en route to the coast for a visit of two weeks. He was wearing one forearm in a splint, having fractured both bones by falling down the steps of his home.

DR. H. T. BAILEY of Phoenix has returned to his practice after spending two months in postgraduate work at the New York Postgraduate Medical School, in the Department of Eye, Ear, Nose and Throat Diseases.

DR. JOHN WIX THOMAS of Phoenix returned to his practice August 31, after spending a month in Los Angeles and vicinity.

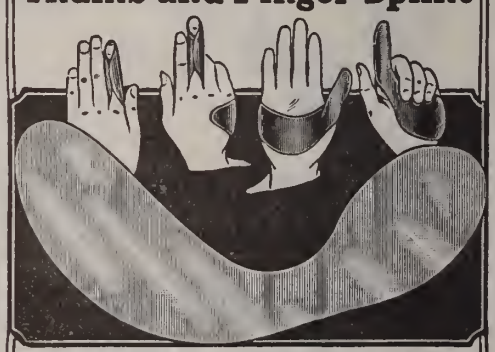
DR. HARLEY YANDELL of Los Angeles ,formerly located in Phoenix, has returned to the latter city and will be associated with Dr. J. J. McLoone, in the Heard Building, in the practice of his specialty of Eye, Ear, Nose and Throat Diseases.

DR. HARLAN P. MILLS of the Pathological Laboratory, Phoenix, Ariz., returned to work on August 30, after six weeks in California visiting relatives and feeding bait to the fish in the mountain streams north of Sacramento.

DR. L. H. THAYER of Phoenix spent his vacation in the mountains of northern Arizona.

With the addition of two more stories to the Goodrich Building, in Phoenix, that structure will more nearly represent a physicians' building than any similar building in the southwest. There will be five stories occupied entirely by medical and dental offices, with the annex containing the Pathological Laboratory. With the completion of this adddition, the Goodrich Building will house somewhat more than half of the medical profession of Phoenix. The building is to be greatly improved, with two fast elevators giving twenty-four-hour service.

Sayles' Universal Thumb and Finger Splint



FITS ANY FINGER OR THUMB OF EITHER HAND. Dozen only $1.25
This new Universal Splint is made from special composition, heavy sheet aluminum. It will fit the thumb or any finger of either hand. It is easily bent to desired shape, yet is stiff enough to render the injured finger perfectly immobile. A great convenience. Guaranteed satisfactory.
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Gentlemen: Inclosed find $1.25. Send dozen 2CJ7912 Sayles' Splints.
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By far the largest majority of children that are brought to hospitals suffering from severe nutritional disturbances are victims of serious errors made by parents who failed to consult their physician, and who attempted to feed their babies without the doctor's advice.

If all babies were under a competent physician's care, infant mortality would be surprisingly reduced.

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New York City

SEE PROGRAM ON PAGE 501

The Medical and Surgical Association of the Southwest Ninth Annual Meeting at Phoenix, Arizona, November 6th, 7th and 8th.

SOUTHWESTERN MEDICINE

VOLUME VIII OCTOBER, 1924 No. 10

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

For Table of Contents—See Advertising Section Page 1

GASTRON

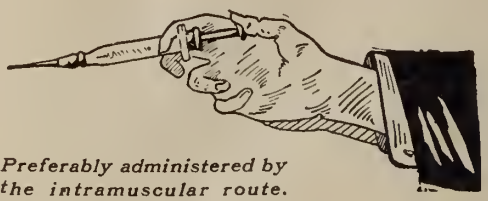
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Preferably administered by the intramuscular route.

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Manufactured as developed by Professor Voegtlin and colleagues of the United States Public Health Service.

Least toxic of the Arsphenamines

20% more arsenic than Neoarsphenamine

More stable than Neoarsphenamine

SULPHARSPHENAMINE by the intramuscular route has proved quite as effective therapeutically as arsphenamine and neoarsphenamine from the standpoint of spirillicidal action and of effect on the blood and spinal fluid Wassermann reaction. There is evidence of superiority over the older arsphenamines in the treatment of neurosyphilis, and distinct evidence of superiority to neoarsphenamine intravenously in all aspects of syphilis.

(*Stokes and Behn, Jour. A.M.A., July 26, 1924, p. 245.*)



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VOL. VIII. OCTOBER, 1924 No. 10

ORIGINAL ARTICLES

TRAUMATIC AND INDUSTRIAL HERNIA 461
J. P. Kaster, M. D., Topeka, Kansas.
(Discussion by Drs. F. H. Crail, L. A. Hubbard, F. P. Miller, and Kaster.)

DELAYED UNION OF FRACTURES 467
E. J: Gungle, M. D., Tucson, Arizona.
(Discussion by Drs. R. D. Kennedy, R. J. Stroud, J. M. Greer, and Gungle.)

CASE OF STREPTOCOCCUS SEPTICEMIA TREATED BY MERCUROCHROME 470
J. B. Van Horn, M. D., Tucson, Arizona.
(Discussion by Drs. E. R. Cox, Z. Causey, C. W. Adams, W. O. Sweek, Grant Monical, J. B. Van Horn.)

ETIOLOGY AND TREATMENT OF LOCAL HAY FEVER 473
George Turner, M. D., El Paso, Texas.

THE PHYSICIAN AND THE SCHOOLS 477
Oscar S. Brown, M. D., Winslow, Ariz.
(Discussion by Drs. H. R. Carson, Z. Causey, J. B. Van Horn.)

LEPROSY, WITH REPORT OF A CASE IN ARIZONA 481
Nelson D. Brayton, M. D., Miami, Arizona. (Illustrated.)

THE CURE OF PROSTATIC ABSCESS BY PERINEAL ASPIRATION 483
W. G. Shultz, M. D., Tucson, Arizona.

OCCIPITO-POSTERIOR POSITIONS IN LABOR, WITH TREATMENT 486
J. A. Rawlings, M. D., El Paso, Texas.

MANAGEMENT OF THE NERVOUS CHILD 491
Branch Craige, M. D., El Paso, Texas.

CHOLERA INFANTUM 497
R. J. Boatman, M. D., Carlsbad, New Mexico.

MY EXPERIENCE WITH TARANTULA BITES 499
M. B. Culpepper, M. D., Carlsbad, New Mexico.

EDITORIAL AND NEWS

THE SOUTHWEST MEETING NEXT MONTH 501
CLINICAL FACILITIES FOR THE SOUTHWEST MEETING 506
GENERAL AND LOCAL NEWS 508-516

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An adequate quantity of radium and complete emanation apparatus affords the facilities essential for modern technique in radium therapy.

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J. W. WARREN, M. D., Roentgenologist *E. D. WARD, M. D.*

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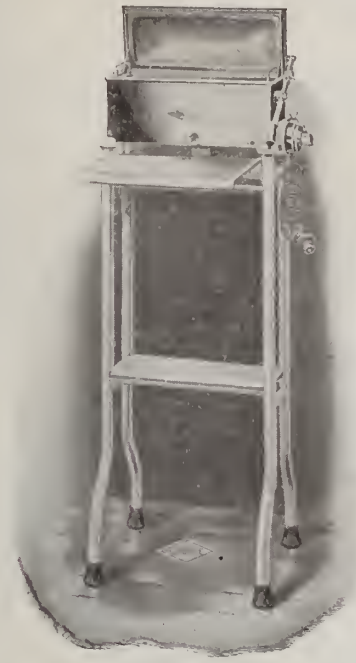
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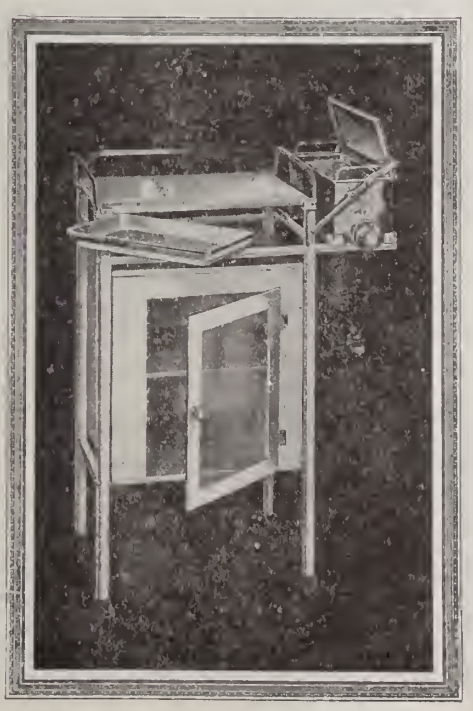
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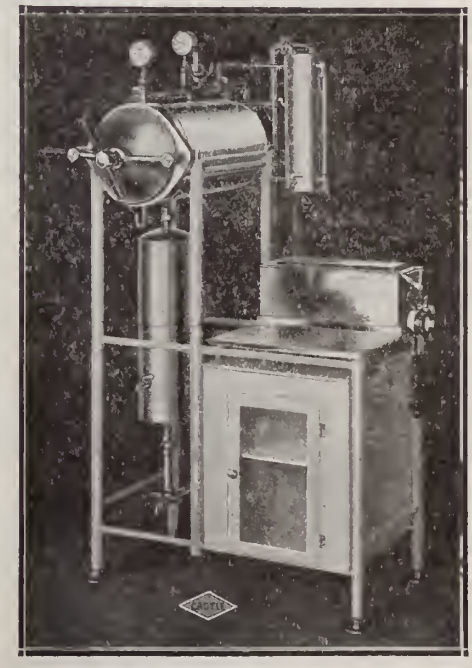
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TRAUMATIC AND INDUSTRIAL HERNIA*

J. P. KASTER, M. D., Chief Surgeon, Santa Fe Railway Company.

The great increase in social legislation in recent years has made the subject of traumatic hernia one of vital importance to every industrial organization. Most states have adopted a workmen's compensation act, and therefore traumatic or industrial hernia, at first largely a question of theoretical interest, has become one of great practical importance.

There has been no definite attempt made to standardize our knowledge of traumatic hernia in regard to its etiology. In recent years the question of compensation has too often rested upon the power of the plaintiff's attorney to stir the emotions of the jury rather than upon carefully weighed judgment, based upon knowledge of the facts, relating to the origin of hernia.

The time has come when these cases are being passed upon by experienced physicians and, therefore, it is important that the facts bearing on the etiology of hernia should be collected, classified and made readily available.

The term "rupture" is very unfortunate in that it indicates an injury and has been a factor in creating the impression that hernias are due to trauma. The definition given of rupture is a "forcible tearing or breaking of a part." That traumatic hernias do occur, there is no question, but when hernia is due to trauma it can only result from the rupture or tearing of the abdominal wall, fascias or muscles. All other hernias are congenital. It will be apparent at once that traumatic hernia is not common.

The New York State Compensation Board states that traumatic hernia is exceedingly rare. The courts of England have decided that traumatic hernia could only occur from direct violence, resulting in definite tearing or rupture of the abdominal wall. All other hernias are classed as congenital defects with preformed sacs.

Prof. Harry E. Mock states that he has personally observed only a few cases of traumatic hernia due to direct violence at the point where the hernia developed. Mr. Mock believes a great majority of hernias develop slowly, due to a gradual dilatation of a preformed sac; that congenital defect is the chief cause of hernia.

MacCready, the greatest English authority on hernia, states that acquired hernia is never due to an accident or a single increase of intra-abdominal pressure.

Graser, one of the highest German authorities, states that hernia, complete in all its parts, can never arise at the moment of accident or by a single increase in the intra-abdominal tension, be it ever so great.

Moschowitz, who made a careful study of hernia in relation to Workmen's Compensation Acts, states that

*(Read before New Mexico State Medical Society, at Santa Fe, N. M., May 27, 1924.)

traumatic hernia is exceedingly rare. It may occur in any part of the abdomen, but usually not at the site of the normal hernial openings.

The following is the rule of the California Industrial Commission: The consensus of medical and surgical opinion points to the fact that hernia is very rarely, in any proper sense, the result of accidental injury—that the accident is, at best, no more than the occasion instead of the cause of the malady, and that the origin of the difficulty is congenital and rather in the nature of disease than an injury.

The Nevada Commission rules that hernia or so called rupture is a disease ordinarily developing gradually, very rarely the result of an accident, and that real traumatic hernia is an injury to the abdominal wall of sufficient severity to puncture or tear asunder the wall and permit the protrusion of the abdominal viscera or some part thereof. All other hernias, wherever occurring or discovered, and whatsoever the cause, except as above, are considered to be diseases.

Many writers state that recent hernias are tender and painful on manipulation, and ecchymosis is not infrequently present. We believe it has no basis in fact. We cannot recall such conditions. We have had men come to the office, claiming traumatic hernia on the right side, having discovered a lump in the groin, which came on a few hours or days before, from only a lift or supposed injury. No complaint on the left side. On examination it was found that the man had a hernia on the right side, and after the right side was examined, the left side was also examined and the fact revealed that he had an equally large, if not larger, hernia on the left side.

Hernia is practically always due to the presence of a preformed sac or open pouch of peritoneum, which pouch has failed to close in the normal way, or to the presence of structural weakness in the neighborhood of the hernial orifices, due to poorly developed muscle or fascia.

I desire to call your attention to the fact that the testicle, in fetal life, develops in the lumbar region behind the peritoneum, to which it is attached, and at the end of the fifth month it begins its descent to the scrotum, carrying with it a fold of the peritoneum. This fold of the peritoneum is carried down into the scrotum with the testicle, forming the processus vaginalis. The fact that the walls of the peritoneal pouch are in apposition is supposed to produce irritation enough to cause adhesions and obliteration of this process. Unfortunately, however, the obliteration of this sac does not always occur and it may be entirely open, as proven by the fact that many children are born with a complete hernia. Any portion of this process may be obliterated, and if we have an obliteration of the sac below and above, with an open portion between, there is developed a hydrocele of the cord. Of course, if the sac is open below, a hydrocele develops.

I am sure that you gentlemen have all seen complete inguinal hernias at birth. They are usually easily reduced. I have seen but one strangulated or irreducible hernia in a child. In this case the patient was nine days old and developed a strangulation. An operation was done and the protruding gut was dark, but on relief of pressure the color returned and the child made an uneventful recovery.

A hernia means an open sac or an open way and does not necessarily imply that any portion of the contents of the abdomen shall be in the sac. It may or may not be. If the sac and opening exist, we have a hernia. Hernia is a very prevalent condition, and unless one has had considerable experience, he has no idea of the percentage of men who are suffering from hernia.

It is generally believed at this time by operating surgeons that where a hernia requires operation it is always well to examine the opposite side, and if on careful examination we find the rings patulous or open and an im-

pulse felt on coughing, that it is always wise to operate both sides. This has been our rule for many years and we have always found that where a hernia is fully developed on one side and where, on examination, we find the opposite side giving us an impulse at the inner ring, on coughing, that we find a hernial sac extending frequently well down towards the scrotum, although this sac may never have been filled by any portion of the contents of the abdomen. It is this class of cases in which we frequently, after operating on one side for hernia, have a hernia develop rapidly in the other, and we believe that it is always better to operate both sides under such conditions.

The definition given of a hernia is the protrusion of a loop or knuckle of an organ or tissue through an abdominal opening. The peritoneum protruding through the abdominal wall is a hernia. A man may have a congenital hernia, in which the contents of the abdomen have never been down into the sac, as this requires a considerable time. The open end of the sac may be so closely fitting and held so firmly by the elasticity of the tissues surrounding the hernial opening that the contents of the abdomen do not pass out, but each time that the intra-abdominal pressure is increased by coughing, lifting, a fall, or straining at stool, the contents of the abdomen will be forced more and more into the hernial opening.

As we grow older, the elasticity of tissue is reduced and it is easier for the contents of the abdomen to find their way into the preformed sac, and each time that the intra-abdominal pressure is increased from whatever cause, the contents of the abdomen are forced more and more into the hernial sac until, by stepping down suddenly, or a fall, or an extra hard cough, lifting or straining at stool, the contents of the abdomen are forced farther into the hernial sac and is discovered by the patient as a mass in the inguinal region. If it be omentum that is forced into the sac, little or no pain is experienced, but if a portion of the intestine is forced into the sac for the first time, the pressure is frequently sufficient to cause pain lasting a short time and not very severe.

Given a history of a man who, while assisting in the lifting of a heavy weight, has an extra strain thrown on him, or a man who falls a distance, it may be but a few feet, and feels a pain in the inguinal region. He simply puts his hand naturally over the painful area, nothing is discovered, and he goes on with his work. It may be a few hours, a few days or a few weeks, before he suddenly discovers a lump in the inguinal region. He applies to the doctor, who makes a diagnosis of hernia or rupture, the patient is informed of the conditions and recalls the fact of his lift, his fall, or whatever strain he may have undergone, and immediately attributes his hernia to the accident. This is not a traumatic hernia. This is simply the first filling of the hernial sac which is congenital and has not been opened by a strain, fall or lift, but has been gradually developing for a long time. Why do we say these cases are not due to trauma? First, because the injury is not sufficient to produce a hernia or rupture. Second, on operation, we always find a perfectly formed sac, and this sac is always in a certain position with regard to the cord. The sac is always adherent to the tissues surrounding it, so much so that it is necessary to dissect it loose, which would not be the condition if recently forced down. It would naturally be but slightly, if at all, attached to the surrounding tissue. The hernial sac is found on the anterior surface and upper portion of the cord and is covered and surrounded by a continuation of the connective tissue which is outside the general peritoneal cavity.

In operating for hernia the surgeon has learned that, if there is a hernial sac, the position is always the same; that is, anterior and into upper portion of the cord, and when the sac is lifted from its position we always find the vas deferens attached and

adhering to the posterior surface of the sac. The vas deferens is not loosely attached, but firmly attached to the posterior wall of the sac and must be dissected loose. These adhesions were not formed rapidly and would not always be found in the same relative position, if the sac had been recently forced down.

I am sure that the operating surgeon knows this, that he always finds the sac as described, which is the position of the pouch of peritoneum which has been carried down into the scrotum by the descent of the testicle. If the hernias were due to violence, I cannot conceive of the hernia forcing itself down into the cord, and always with the vas deferens attached to its posterior surface.

It is natural to suppose that if they were due to trauma or injury that the sac or hernial pouch would be forced, not into the cord, where it is found, but into the connective tissue in front, behind or on either side of the cord. This condition does not occur.

The sac is always found in the cord, covered by the same connective tissue that covers the entire cord. In operating, we always have to tear through the connective tissue which surrounds the cord in order to find the hernial sac. I am sure when I call your attention to the development of the testicle, its descent into the scrotum, carrying with it, as it does, a fold of the peritoneum, that you will see at once that the hernial sac, as ordinarily seen, is congenital and not due to trauma.

We have all of us seen serious injuries of the abdomen resulting in rupture of the intestines, liver, spleen or kidney, without the formation of a hernia. Cases are frequently observed where we have a serious injury to the contents of the abdomen, without the production of a hernia. The fact is liable to be overlooked that hernia cannot be developed by a single increased intra-abdominal pressure, but is always the result of long continued intermittent pressure upon the upper end of a preformed hernial sac.

That hernia may be due to trauma I have no doubt, but it is a rare accident and cannot occur without a rupture of the fascia or muscular layer of the abdominal wall, and it has been noted that when traumatic hernia does occur it is seldom, if ever, through the natural hernial openings.

Again, if hernia results from trauma, we must have the physical evidence of the injury and the injury will be sufficient to incapacitate the patient at once and the shock of the accident will be sufficient to cause the patient to seek medical advice at once.

I am calling your attention to these conditions and facts that you may give them serious consideration and not be willing to follow blindly the teachings of the older writers.

It is a fact that we have learned very much, in fact, have gained our knowledge of hernia and its production, only since we have been operating for its relief, which is not so many years.

DISCUSSION

DR. F. H. CRAIL, Las Vegas, N. M. (opening discussion): I think we have all been not only interested, but informed by the excellent exposition of the subject of the etiology of traumatic hernia, as given us by Dr. Kaster. Not only the sound pathological basis of his argument, but the weight of his long experience in a position that has given him unusual opportunities to observe the condition of which he speaks, will carry conviction to most of us.

And, as Dr. Kaster says, this question is no longer confined in its importance and interest to industrial surgeons per se, but all practicing physicians, because of working men's compensation laws and health and accident insurance, come in contact with it and should understand whether a traumatic hernia has a pathological basis in fact or not, in order to know what stand should be taken in the matter.

I think that perhaps we have all felt sometimes that an unusual strain or fall or heavy lift has brought on a hernia as illustrated by the following case: A young man thirty years old, a lawyer by occupation, served as a second lieutenant during the World War. He passed the several examinations for admission to the army during service and when discharged, and no hernia was ever detected and his discharge papers pronounced him physically fit. Two years after his return home he went to Silver City to an American Legion Convention and on the way home the automo-

bile in which he was riding got stuck in the sand and he did a great deal of pushing and lifting to get the car out. Immediately after this he noticed a discomfort in the right groin and upon examination a small incomplete indirect hernia, about the size of a pigeon's egg, was found. There was no evidence of trauma about this hernia, there was no tenderness in the region of it and the young man was operated upon within a few days of his return home. Now the clinical evidence in this case, the history and all, would seem to make out a pretty good case for a traumatic hernia, as the term would be used in claims against employers and insurance companies. But at operation the pathological condition was exactly as Dr. Kaster described it; the sac was intimately connected with the surrounding structures, it occupied its usual position to the cord and its attachment to the cord was firm. This picture was not at all one of something that had recently happened, but rather one of something that had been there a long time, and as we know that some of these sacs that extend into the scrotum and are continuous with the tunica vaginalis are congenital and have been universally so considered. So it is very reasonable to suppose that these others, too, such as the one in the hernia that I have described, are also congenital or have formed so slowly that the hernia may be looked upon as a disease rather than an injury.

Hamilton Russell of Melbourne found a direct hernia sac in a cadaver where the man had no hernia during life and a number of similar pouches have been found in the femoral region with no history of hernia during life. It is certainly also true, as Dr. Kaster has pointed out, that hernias exist without patients knowing anything about their presence. I have had this strikingly illustrated twice in cases of strangulated hernias, once in a woman who had symptoms of intestinal obstruction for five days with fecal vomiting and neither she nor her attending physician had discovered that she had a lump in her groin and she absolutely denied that she had ever had a hernia. The other was a strangulated femoral hernia in a middle aged man who laughed at my notion that a little lump that I found over the saphenous opening could be the cause of such a belly-ache as he had been having. He said that he had never noticed anything there.

All the evidence seems to favor Dr. Kaster's contention that practically all hernias are probably congenital or at least very slow in their development and that trauma plays no part in their causation.

DR. L. A. HUBBARD (Raton, N. M.): I do not arise for the purpose of discussing the doctor's paper, but to ask a question. Are these hernias which do not bother some persons, but which are really present from birth, to be considered as injuries, and should a man be compensated for them under a compensation law?

If you are engaged in industrial surgery, you see a lot of this. Oftentimes we have men who come to us with hernias they got the day before or several days before, after extra exertion. We examine the records back for several years (nearly all of these men have had repeated physical examinations), and we find the man had an established record of hernia three years before. In such a case the man gets no compensation for hernia, because it is an established fact that he had one previously. Nearly all the rest of them do receive compensation, however, because we cannot show that hernia previously existed. So I should like to ask how, in addition to telling these people that a traumatic hernia does not often occur, we can establish this fact? It means a lot of money to the patients—and also to the various companies. If there is any information Dr. Kaster can give me on these lines, it will be appreciated.

DR. KASTER: I am going to ask Dr. F. P. Miller if he won't tell you of the case he was speaking to me about today, which he thought was a traumatic hernia?

DR. F. P. MILLER (El Paso, Texas): I really wanted to talk about Dr. Kaster's paper, which I enjoyed and appreciated very much, but have been on the floor before this afternoon and do not want to impose.

I am sure Dr. Kaster's conception is entirely right from an embryological standpoint, especially when speaking of femoral and inguinal hernias.

In Texas, the Compensation Law settles the question. You must prove that the hernia did not exist to any extent whatsoever prior to the accident, and that when the accident occurred, the patient felt immediate severe pain and that he was totally incapacitated from that itme.

The majority of cases we find at operation are just as Dr. Kaster describes. A great number of persons come to us for operation who are working for themselves—farmers, for instance—where there is no compensation due from a corporation, and there is no question involved as to whether it is a traumatic hernia, except the patient states that while engaged in his usual occupation he suddenly felt a pain in his inguinal region and that a lump appeared and that he never had any evidence of a rupture prior to this accident. But in other cases of laboring men, working under the law, the question of traumatic origin must be decided.

The case I spoke to Dr. Kaster about was that of a young man, 23 years old, an Italian, who formerly served with the Fort Bliss troops as a special motor cop. He resigned and accepted a position with the Baptist Sanatorium. The other day in coming to town at a very fast rate on his motorcycle, he collided with a truck. I first saw him in the tonneau of an automobile. He was unconscious, but was writhing, groaning and apparently in great pain. There was present a large swelling beneath the skin of the abdomen, just to the left of the middle line, about 2½ inches

below the umbilicus. The swelling consisted of intestines and was easily reduced by pressure of the hand, but would recur immediately the patient began straining. Diagnosis of traumatic hernia was made and laparotomy was performed at once. We found that all the tissues of the abdominal wall with the exception of the skin had been lacerated. The wound passed through the peritoneum and the posterior fascia of the left rectus muscle, had torn its way through the rectus muscle and the anterior layer of the fascia and all the superficial tissues. A great deal of blood, blood clots and intestinal contents were found in the wound. There was a complete rupture of the ileum, destroying about four and one-half inches of the wall of the small intestine. It was impossible to suture this portion of the intestine and we resected it and did an end to end anastomosis. There were several longitudinal ruptures of the peritoneum and muscle layers of the sigmoid, but the mucous membrane seemed to be intact. There were present lacerations of the parietal peritoneal wall adjacent to the left iliac fossa, with ecchymosis in a number of places. However, at the internal abdominal rings, there was no evidence that these parts had borne any particular injury. There was only a slight external wound on the skin and this was found about two inches above the pubis and to the right of the middle line. The patient had a number of other wounds about his body and face.

I believe that this should be classed as a true traumatic hernia. Of course, there was no peritoneal pouch covering the intestine. The patient made a good recovery and has a sound abdominal wall.

I have seen two cases of hernia of the diaphragm. Dr. Kaster did not speak of this type of traumatic rupture in his paper. One case was that of a Mexican who had received a gunshot wound in the Mexican Revolution. The bullet had passed in an anterior posterior direction and had evidently severed the pleural surface of the diaphragm for about two and one-half inches, but did not penetrate deep enough to sever all the tissues. Near the posterior attachment of the diaphragm, the bullet had passed through all the structures of the diaphragm and then emerged again on the pleural surface. The bullet was shattered against the tenth rib and part of the bullet had been removed. However, it showed plainly on x-ray examination. Pieces of the omentum had plugged the two openings in the diaphragm. Later, while working as a railroad section hand and lifting on a steel rail, he felt intense pain in his abdomen, followed by profound shock. For about a year following he was unable to do any work and suffered vague abdominal pains with nausea and vomiting. He also complained of shortness of breath and general weakness. He was sent to my clinic for appendicitis. We found no tenderness over his appendix and his history was not typical. Examination of his chest was unsatisfactory. The x-ray showed us plainly that he had a hernia of the diaphragm. The abdominal contents, with the exception of the attached portion of the cecum and appendix and sigmoid, and that portion of the intestine remaining of sufficient length to reach the opening in the diaphragm, were all in the left pleural cavity. We obtained a number of good x-ray pictures. At the time of operation it was extremely difficult to bring the intestines from the pleural into the abdominal cavity owing to the fact that the pleural cavity represented a vacuum and that portion of the intestine which was drawn down, as soon as released would be propelled back into the pleural cavity. We overcame this difficulty by inserting a small catheter into the pleural cavity, allowing air to enter. There was no special difficulty in repairing the wound in the diaphragm. It is interesting to record here that we had a complete expansion of this collapsed lung at the time the operation was completed. This was demonstrated by x-ray before the patient was put to bed.

Another case was that of a man caught in a cave-in while working in a mine in Colorado. Several bones in his chest, arms and pelvis were broken. He stated that his head was forced between his knees and evidently a rupture of the diaphragm occurred at this time. We made a number of x-ray pictures of this case, but the patient refused operation. The Industrial Commission of Colorado requested the x-rays and promised to return them after they had passed on the case, but we have never been able to get them returned.

DR. KASTER (closing discussion): Dr. Crail spoke of the soldier who returned from the army and had passed repeated examinations and had no hernia and never had a hernia until a certain time when he attempted to lift an automobile out of a ditch, the hernia appeared. I do not question the doctor's statement, that the man had passed repeated examinations and no hernia was discovered. I doubt whether there is a man in the house today who can say absolutely whether a patient has hernia or not, from any physical examination, unless the contents of the abdomen come down into the hernial sac. The sac itself is so delicate, that covered as it is by the skin and superficial fascia, as well as the covering of the cord, no man can prove or disprove the presence of the hernia, unless the contents of the abdomen can be forced into the sac.

I knew a young man who was anxious to go into the army. He came to me on account of the fact that he had a hernia and wanted to know how he could get by. I told him I did not know. He said, "I am going to try." I told him that if he were going to try to get by the board, he had better throw away his truss and not make an attempt until all evidence of having worn a truss had disappeared. He passed the examination, and since getting out of the army has been drawing compensation for hernia occurring while in the army.

We examine a patient, and if we find that he has a large external ring, you ask the man to cough, and you get an impulse against the finger. The man certainly has a hernia, at least a potential hernia. He has a sac there, and it is only a question of time until that man is going to have the contents of the abdomen pass down into the hernial sac.

I had a personal experience; when 48 years old, one day I suddenly felt a pain in the groin. I felt of the groin and could not feel anything, but the manipulation relieved the pain. I coughed and could get no impulse. I felt that I was developing a hernia. I was examined by some friends, who said htat I did not have a hernia, and a few months later, suffering from a cold, during a coughing spell, felt a pain in the groin and a tumor appeared. I put on a truss. Later, I visited my mother and, in speaking of a hernia, she told me that I had a hernia when I was born and had worn a truss for two and a half years. I had gone 48 years without the contents of the abdomen coming down into the hernial sac. I had an operation and it was proven beyond doubt that I had a congenital hernia.

I have seen but two hernias due to trauma: One the result of a man being struck in the abdomen by a piece of board thrown by a saw, rupturing the deep fascia, as well as the muscles. The other a switchman, who was caught between the cars. The only reason the man was not killed was because the cars did not come quite close enough together. The abdomen was compressed and a hernia resulted. When the slack went out between the cars, the man dropped to the ground, was carried to the hospital, and when he arrived at the hospital the scrotum was filled with blood, as well as with the abdominal contents. His life was despaired of, but he finally recovered.

When you have a traumatic hernia, you do not have to ask your patient when it occurred, because he will be immediately put out of commission.

Traumatic hernia occurs usually far away from the natural hernial openings and there is always physical evidence of the injury. Any injury sufficient to produce traumatic hernia is a serious injury.

DELAYED UNION OF FRACTURES*

E. J. GUNGLE, M. D., Tucson, Ariz.

This subject suggested itself for the main reason that in dealing with fractures of either the simple or compound class there exists the possibility of a given case eventuating in this unpleasant condition, and from an interesting case coming under my observation in which bony union came after a period of approximately two years, even after a reversible inlay graft was done at a relatively early stage. I hope that a general discussion will follow in order that any new suggestions may be heard and thus add to our information.

Delayed union is due to a retardation in the repair process which ordinarily results in complete bony union at fracture site, the osteogenetic forces stopping or being greatly delayed. It is impossible to say just when a delayed process becomes a non-union, for a prolonged one might eventually unite; but for economic and other reasons it is a matter of no small concern both to patient and physician to use every means to secure firm union at the earliest time possible.

The histogenetic elements entering into the repair process may now be considered, for the failure or pathology thereof would seem to be the greatest cause. In simple fractures hemorrhage occurs between the ends as well as into the surrounding tissues; this acts as a stimulant which incites irritation of the living cells, which, in turn, multiply, the capillary mass extending their granulation buds from either side; this is the granulation stage. The Haversian system is next built into this mass, resulting in the fibrous stage. Each particular tissue produces like cells; the arteries next develop their arteriole collateral branches; the nerves next; the bone, soft callus at first, with its latent osteogenetic forces, first in the subperiosteal layer, then those in the walls of the Haversian vessels, in the compact bony tissue and the vessels with the osteoblasts in the medulla. All these histologic tissues coalesce across line of fracture, the ossification of the walls of the blood vessels forming the lamellae of the Haver-

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sian system. This is first formed around the periosteum; second in the medulla, and lastly in the compact bony tissue eventuating in the third or cartilaginous state which ordinarily goes on to bony union; the next step is absorption of excess callus, both the peripheral and medullary.

Causes are generally given as local and constitutional; the local seemingly having the greater number of believers. Among these we include malapposition of ends; interposition of soft parts; misapplied retention splints; diminished blood supply, as when nutrient vessels are involved or some local bon edisease is present; faulty endocrinology; syphilis or other constitutional conditions.

In non-infected compound cases, Murphy has shown that the external bleeding removes the clot between the ends of the bone which ordinarily acts as a support for the budding capillaries; this has to be re-established, thereby extending the time for repair. With infection added, the bacteria break down this tissue again and again and nature throws off this supporting scaffolding, greatly delaying the bony union. Occasionally the deeper layers of connective tissue survive, which, on contracting, may draw some of the surrounding tissues between the ends, auguring for delay. In some cases no bony cells or calcareous deposits occur at all and for which reason no one has shown definitely.

Statistics show chief location sites for this pathology to be,—first, upper one-fourth with lower three-fourths of the humerus; second, three and a half to four and a half inches above the internal malleolus of tibia; and, third, the neck of the femur.

TREATMENT

Knowing the role infection plays in compound fractures, we should be scrupulously careful in the first handling of same, particularly of invading the region unnecessarily, and be as aseptic as possible; in impacted fractures at the neck of the femur, great care must obtain lest this impaction be broken apart, which might preclude a useful limb. Since the lower tibial region is so frequently involved, and as local stimulation appears to react favorably, early ambulation with suitable splints should obtain. Local masage and efforts for securing local hyperemia are of great service. The non-operative treatment is the accepted way of handling the general cases; but for those impossible to get into sufficiently good apposition or failure to retain there, the open method with some variety of retentive Lane plate or autogenous graft would be indicated. In the operative management for delayed union the antogenous graft is best. Lane maintained that his plate was not for the delayed or non-union type, and many authorities have verified this statement. Murphy frequently resorted to the autogenous intramedullary type with wonderful results. Henderson seems to favor the reversible inlay method, wherever same can be conveniently done. Tibial autogenous grafts are greatly used now. In Bier's clinic, the injection of venous blood between ends has had a favorable outcome generally. In luetic cases, specific treatment is indicated. Lime water has been used with some measure of favorable results. Thyroid extract has also been recommended.

Coughlin has remarked that in fractures of lower extremity, it is not necessary that firm bony union exist before patient can use the limb, and that the early, careful use of same would bring better results. He had a case of transverse tibial fracture, without any separation remain ununited for fifteen months and then unite, without operation. He estimates that about 90 percent will unite by ordinary care.

CONCLUSIONS

Cases of simple fractures, nicely reduced, may be unduly prolonged in reaching final complete bony healing. Statistics show that the upper humerus, lower tibia, and neck of the femur are the chief offenders; that early, passive motion should be used and early ambulation begun where

splinting will permit, to stimulate osteogenesis, and that, even after operative procedures, the time for union may be unduly prolonged.

CASE REPORT

R. L. H., age 42, came to me September 3, 1921, with compound fracture of tibia and fibula, lower third, which he received a short time before by getting his leg caught between base and fly wheel of gas engine while starting same. Fracture reduced, wound dressed and plaster cast applied and splint with window made for dressing wound; ran slight temperature for few days, but no infection followed. A new cast applied after a week and skigraph showed good apposition and alignment; patient kept in bed for six weeks, eventuating in firm fibular and only partial tibial union. Was then allowed on crutches with splints so applied to permit of easy massage. At end of four months, tibial union slightly firmer than before; radiograph showed callus of tibia. The cast was so arranged that heel might be struck against floor to help stimulate osteogenesis. Ten months after injury patient had a reversible inlay autogenous graft done which did not seem to help any, for a sinus developed and union occurred after a period of over two years.

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DISCUSSION

DR. R. D. KENNEDY (Globe, Ariz.): I haven't much to add to Dr. Gungle's paper. Louis Championniere, even before the time I started to study medicine, had been teaching the treatment of fractures by extension and mobilization, and his results in delayed union were probably superior at that time to the results obtained by any other method.

When I studied medicine I was taught that the reduction and immobilization of fractures with a maintenance of this immobilization was the proper treatment. The mobilization treatment of fractures is undoubtedly painful, and it is hard to get your patients to stand for it, but in delayed union your mobilization is the proper treatment as is illustrated by the following case:

A man, aged thirty-nine years, on May 29, 1921, had a compound and greatly communicated fracture of the right tibia. The damage to the soft parts and blood vessels were such that, at that time, the doctor who was taking care of him was fearful that he might lose his leg. It became cold and black. He put it in a pillow, elevated the limb, and maintained heat, and after babying it along for some time, the circulation was re-established and the leg put in a plaster cast.

On November 3, 1921, there was no attempt at union and a sliding bone graft was done. The limb was put in a plaster cast and completely immobilized. The x-ray showed the gradual disappearance of the bone graft. There was no infection.

On July 3, 1922, a second bone graft was done. The second graft was larger than the first, as large as the tibia would permit, and again the limb was treated in the same way. A series of x-ray pictures showed the gradual absorption of the second bone graft without any union.

On January 17, 1923, a Delbert walking splint was put on this patient. This splint is ably described in a number of the Surgery, Gynecology and Obstetrics by Dr. Abbott of the University of Michigan. This man was a Mason. With this Delbert walking splint on, he went to work with his ununited fracture and within four months marked evidence of union was shown and today he has a perfectly united fracture.

A series of x-ray pictures show the marked comminution and injury to soft parts and the gradual disappearance of the two grafts and then finally the application of the Delbert walking splint with the evidence of union taking place, until finally a picture taken a few days ago shows a complete strong union.

So, I believe that in many of these cases we are making a mistake in too completely immobilizing our fractures; that if we allow the ends to pound against one another we stimulate bone formation and will get better results.

DR. R. J. STROUD (Tempe, Ariz.): The question of immobilization in compound fractures would be simple if infection did not take place. When infection takes place in a compound fracture you have to immobilize and keep the fracture immobile until all of the infection has cleared up. Of course, slight compounded fractures, those you get early and in which you can debride or clean out and open to obviate the development of infection, may be treated as simple fractures in a few days; that is, after the danger of infection is past. In those massive compound fractures where you have a big loss of tissue and a big lot of dirt and grease and various things that happen to get into wounds, you are certain to get infection in spite of everything done. Then a splint will have to be put on to secure absolute immobilization and provision made for drainage, cleansing the wound, and the addition of antiseptics. The British surgeons found, during the war, that only immobilization could accomplish union when infection had taken place, even after many months of trouble. Dr. Kennedy worked with Dr. Morrison while in the service and also with Dr. Jones, and these British surgeons immobilize infected fractures. In fact, when there was a lot of comminution in massive fractures, the loose bone could all be cleaned out, the ends jammed together, and if there should be infection resulting, they could absolutely immobilize them to get results. They took no account of shortening. If you keep it up and keep it up (this immobilization) you get union. If you let up

on immobilization for even one day in an infected case you will destroy your results.

I don't think either of the doctors preceding me mentioned this phase of the thing, but you are not going to get union—I don't care who it is—in any fracture that is infected, if that infection is around the bone, if you move that bone at all.

I called Dr. Kennedy's attention some few years ago to a case. I had a man who had run his forearm through a big cog wheel. He begged me not to take the arm off, and it looked pretty hopeless. The distal end was about torn off and full of grease. Both bones of the forearm were badly dislocated. He was a blacksmith and this was his right arm. I cut out a lot of bone and jammed the ends together. I put the arm up in a position so that if union resulted the expected stiffening of the elbow would allow him some use of the arm. Enormous infection resulted, but thorough immobilization gave a union. Had I thought of less stiffness of the elbow and moved this arm, the resulting non-union would not have helped him. He kept insisting his elbow was going to be mobile. He was immobilized six months, had a union of the bones, and somehow or other had practically a perfect elbow result. He is blacksmithing today. I want again to emphasize the fact that no matter what you do with a noninfected fracture, you are not going to get a union in an infected fracture unless you immobilize until the infection is entirely cleaned up.

DR. R. D. KENNEDY (Globe, Arizona): If I might say just a word more; many of these delayed union cases are treated by Sir Robert Jones by what he calls "the damming and tapping method." It is practically what is known as the "Biers treatment." With gentle pounding of the fracture region with a light mallet, it produces congestion and stimulates the blood supply to the parts and that is what causes the healing. In infected wounds, your infection has produced the congestion and it is not necessary to mobilize these in order to get a healing. As the doctor said, certainly it would be bad treatment to mobilize an infected wound, and in speaking of that I do not wish to include compound infected fractures that have delayed union.

DR. J. M. GREER (Mesa, Ariz.): There is a very interesting specimen at the Army Medical Museum that illustrates Nature's method in healing wounds and fractures. It is a femur of a deer that apparently had been shot, no doubt sustaining a compound fracture; it may have been infected—we do not know about that—but the thigh bone was fractured in two places and the specimen there shows a complete union at right angles in two different places, with the formation of a medullary cavity through both lines of fracture. Apparently that deer went on running and went about its business, and the fracture, being fractured in two different places, took this right angle turn, and firm union was established.

Relative to splinting bone grafts; I remember another interesting case while I was in the service, in which a bone graft was inlaid in the left humerus. Instead of putting in a cast at that time, they put little splints around the arm and the patient took off the splints, I think, the next day or two. Later this was checked up and it was found that the patient had splints on about two days, and from then on the arm was carried in a sling. The patient had a very nice union.

DR. GUNGLE (closing): Regarding Dr. Stroud's comment on compound infected fractures that perfect immobilization must obtain to get union; this is along the generally accepted lines of treating any sort of infection, that absolute rest shall exist in hastening repair processes, and is certainly a very strong point to emphasize.

CASE OF STREPTOCOCCUS SEPTICEMIA TREATED BY MERCUROCHROME*

J. B. VAN HORN, M. D., Tucson, Arizona.

Patient R. H. S., age 17.

Past History: Negative except for pneumonia at ten and typhoid fever at sixteen.

Present Illness: Received incised wound on inner side of right thigh through skin in jumping a barbed wire fence on March 16, 1924. That evening it was treated with iodine, but not dressed. States that he felt "funny" all day Saturday, March 22nd, with some headache by evening. On March 23rd awakened at 4 a. m. feeling quite ill, called a physician at 7 a. m. and was ordered sent to the Infirmary. Wound appeared dry and innocent. Was very uncomfortable all day, with temperature increasing until at 7 p. m. it was 105.2. At this time Dr. Huffman was called in to see patient and special nurse was put on. Condition was diagnosed as some type of infection of a severe type. Wound was slightly reddened at the edges, crust was removed, showing very slight purulent material at bottom. Inguinal and axillary glands on the right side were

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tender and slightly swollen.

March 24th: Remained very ill; blood culture taken (which showed moderate growth of streptococci at end of 24 hours). Axillary glands were more painful, extending to those down the border of biceps; inguinal about the same as on previous day. At 5 p. m. was given 30 cc. of one percent aqueous solution of mercurochrome, intravenously. There was a pronounced reaction, manifested by severe chill lasting two and a half hours, with rapid rise in temperature to 106.6; with this came a desire to defecate and one or two well formed stools thinning to watery and turning red from the mercurochrome by the following morning; urine was red in a few hours after the injection. Shortly before midnight chill ceased, there was profuse sweating, condition improved, there was rapid fall in temperature (see chart), patient felt very comfortable and slept some. He stated the pain was gone from both groups of glands and, except for diarrhea, he was perfectly comfortable. Second blood culture was ordered (this showed no bacterial growth in 24 hours).

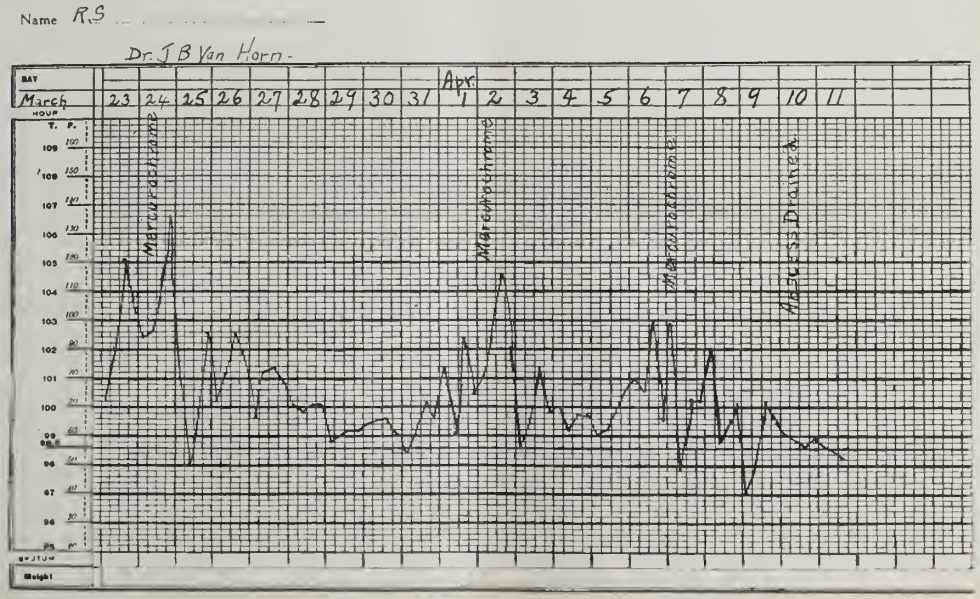
March 25th: Temperature normal; diarrhea, which showed considerable blood, controlled by opiate (Tr. Op. camph., half drachm; morphine by hypo. quarter grain). Feels greatly improved and quite comfortable.

March 26th: Soreness in axillary glands, with swelling and redness, some increase in temperature, but feeling well and has good appetite. Temperature a little stepladder in type, with increasing soreness of axillary glands and complaining each day of not feeling as well as on previous day. Temperature reached 102.6 on April 1st.

April 2nd: Was given 30 cc. one-third of one percent mercurochrome, which was followed by a reaction of lesser severity than before; slight chill, with temperature rise to 104.6, followed by a drop to normal. All soreness in glands disappeared, rested well and felt well again. No diarrhea followed this nor the succeeding injection of mercurochrome.

On April 6th temperature was 103, and on April 7th was given injection of 30 cc. of one-third of one percent mercurochrome, which was not followed by the reaction symptoms as before.

On April 8th, axillary glands were increased in size with some induration and appearance of localizing abscess. On April 9th patient was feeling fine, the glands still showing evi-



dence of tendency to suppurate. On April 10th an incision was made in axillary glands on the pectoral side, evacuating 40 cc. of greenish, moderately thick pus. Glands rapidly decreased in size and wound closed in a few days.

On April 22nd returned to classes, with temperature and pulse normal. Has regained eight pounds of lost weight; appetite and digestion are excellent. Except for some enlargement of axillary glands, physical findings are all negative and patient is apparently well.

DISCUSSION

DR. EDW. R. COX (Clifton, Ariz.): I would like to mention the case we recently had in Clifton Hospital. A woman entered with a large swelling on the right side of her face and neck. She appeared very ill. The temperature was 104, pulse 120. The swelling was hard and indurated. She had several carious teeth. An incision was made without obtaining pus. The day after entry the temperature ranged from 101 to 106. The patient looked bad. The swelling was still hard. We decided to use mercurochrome as a last resort. The first dose was 10 cc. of a one per cent solution. The day following this injection fluctuation was present in the swelling and the patient was brighter. The temperature ranged from 99 to 103. Ten cc. was also given on the second and third mornings after the first injection. After the second injection fluctuation in the swelling was marked and it was incised and drained. After the second injection the patient had a chill and rigor lasting about 30 minutes. Otherwise there was no reaction to the drug. The temperature dropped to normal after incision and evacuation of pus, and remained so thereafter.

DR. Z. CAUSEY (Douglas, Ariz.): I merely arise to report a patient whom I treated with mercurochrome.

A nurse at the Cochise County Hospital, age about twenty-five years, in perfect health. She developed what at first appeared to be a felon which on the third or fourth day was freely incised but with very little discharge. The wound was treated in the usual manner but the infection continued, involving progressively the hand, arm, pectoral and axillary regions; irregular chills and high fever were present ;smear and blood culture demonstrated the presence of staphylococci. Active, illuminative and supportive treatment was given but with no appreciable favorable results. In consultation it was decided to resort to mercurochrome by the intravenous route and 20 cc. of a 1% solution were given. There was no reaction other than a slight rise in temperature. Patient passed a fair night and the following morning, about sixteen hours after the injection, showed signs of improvement; temperature was lower and she felt more comfortable. Twenty-four hours after the first dose a second dose of like amount as the first was given, after which the symptoms rapidly subsided and the patient made a rapid recovery.

This patient was extremely sick and in the opinion of the physicians in attendance the mercurochrome turned the tide in her favor.

DR. C. W. ADAMS (Globe, Ariz.): I was very much interested in this case. It seems to be another one of those rather phenomenal cases where we get a complete sterilization of the blood after a very profound infection. My only excuse for making any remarks whatever about this paper is that I have under treatment at the present time a woman who is pregnant for the first time. She has been very desirous throughout her married life of having a baby. She had one sister who died following an infection at the time of delivery. She has had in the past year one or two attacks—rather mild—of pyelitis and, in view of the cases that have been reported by Dr. Young, I should like to ask the doctor whether or not he knows anything about the treatment of pyelitis of pregnancy with mercurochrome?

DR. W. O. SWEEK (Phoenix, Ariz.): My experience with the colloidal metals was in 1912 and 1913. We were injecting a series of cancer cases at the Skin and Cancer Hospital in St. Louis, with colloidal metals and various other substances. One of the first things I noticed after the injection of colloidal copper was the disappearance of the odor and a rapid cleaning up of the infected area of the open cancer. As you all know that is a very difficult thing to deal with. That led me to further experimenting with colloidal copper in infected wounds and I must say that the results were not very remarkable, about the same result that you get with mercurochrome. I want to sound a word of what I believe, from personal experience, if such is admitted in a scientifc discussion,—do not expect too much. We are going to have some sad disappointments with mercurochrome. Go slowly and cautiosuly.

DR. GRANT MONICAL (Phoenix, Ariz.): The reports of the cases where mercurochrome has been given are not very numerous and it occurs to me that the recital of two or three of these cases here sound very inconclusive, and that the same results might have been obtained without the mercurochrome. I should like to ask about the use of the method in puerperal septicemia.

DR. J. B. VAN HORN (Closing): With regard to the inquiry about the use of mercurochrome in pyelitis. There is one case I know of, not in my own practice but a patient of Dr. Schultz. This patient had pyelitis and the doctor thought it offered a good place to try mercurochrome; he says he administered the usual 5 mgm. dose advised by Drs. Young and Hill and that he

did get a terrific reaction similar to that in the streptococcus case reported here, and that he had a great diminution in the amount of pus and great improvement in the general condition of his patient. He says that she was quite neurotic and seemed hysterical and, due to the reaction she had immediately following the injection, promptly informed him that if any one ever approached her with a syringe that had anything red in it, he would have to get her unconscious before being allowed to use it again; so, while his experience looked like he was getting a good result, the patient bucked and he did not get to finish.

Regarding Dr. Monical's inquiry about the use of mercurochrome in puerperal septicemia. I think it is in the Journal of Obstetrics and Gynecology where a report is made on several cases of puerperal septicemia where mercurochrome has been used with equally as good results in several cases as we obtained.

I have never seen a patient as sick as this boy Summers and yet make a recovery. The case was so remarkable, with the boy so intensely ill one night that he was apparently doomed and twenty-four hours later his condition is so much improved that you would think he was on the way to a good convalescence.

The object in this report is not to encourage experimenting in every type of infection or every case of abscess formation with the expectation of securing good results, but our results in this case justify the use of the procedure in this type of case, at least.

ETIOLOGY AND TREATMENT OF LOCAL HAY-FEVER*

GEORGE TURNER, M. D., El Paso, Texas.

Nature's means of reproducing plant life is through the formation of fertile seed. The flower is the forerunner of the seed and in this stage fertilization occurs through the agency of a substance known as pollen. All trees, shrubs, weeds, grasses, etc., bear flowers, produce pollen and develop seed. The essential parts of the flower are the stamens and pistil. The stamens are usually several in number and separate structures which bear an enlarged body at the upper end known as the anther or pollen case. Each anther contains many pollen grains which are microscopic in size and are liberated, when ripe, by the natural bursting of the anther or pollen case. This is termed pollination. The pollen is scattered for the purpose of fertilizing the flower of plants of like species through two agencies; wind and insects. The wind pollinized plants are known as anemophilous plants. Their flowers are usually inconspicuous and their pollen is of small grain, light and buoyant. It is capable of being blown to a great distance and is the direct causative agent of hay-fever. The entomophilous or insect pollinized plants are usually of bright color, which attracts the insects. The pollen of these plants is of large grain, heavy and sticky. It adheres to the body of the insect and is carried from flower to flower by its visitations. These plants are not to be considered as a direct cause of hay-fever, but the pollen from some of them is toxic and a sensitive patient coming in direct contact with same will develop marked hay-fever symptoms.

It has been estimated by the U. S. Government that three and one-quarter percent of the people of this vicinity suffer from hay-fever. This estimate is perhaps low. The reasons for its frequency in semi-arid climates are; (1) the plentifulness of air borne pollens, which last through the long season of warm weather; (2) the unusual number of windy days; and (3) there is little rain to damage the pollen or prevent it from being blown about. Locations of little rainfall and much wind are nature's homes for air pollinated plants. However, every locality has so called hay-fever plants and should be surveyed to ascertain their identity, but locations of little wind and much rain are less inducive of hay-fever. In a region such as this the hay-fever season is almost nine months' duration. It begins in the early spring and lasts until frost. Its frequency is of considerable economic importance to us because people will not remain in a locality where they suffer from the disease, if they are not relieved.

(*Read before the Las Cruces Medical Society in April, 1924, and before the El Paso County Medical Society.)

The anemophilous plants of this locality, so far as investigated, are twelve in number. The season begins in March with the pollen of the cotton wood (Populus Macdougali) predominates with a few scattered balsamifera), which is followed about a month later with the Arizona Ash (Fraxinus Toumeyi). These trees are only of short duration but while they are pollinating they produce an abundance of pollen which is exceedingly toxic. Next in importance is the Bermuda grass (Cynodon Dactylon) which begins pollinating with the first warm weather and continues into November. This pollen is unusually buoyant, drouth does not kill it nor heat affect its toxicity. Its long season of pollination and highly toxic nature of its pollen protein makes it one of the most important causes of hay-fever. Johnson grass (Sorghum halepense) constitutes the only remaining member of the gramineae group of plants that is a cause of hay-fever in this locality. This pollen lasts from May until frost. It is a much heavier pollen than Bermuda grass and its radius of distribution is much more limited. There are several plants that begin pollinating in June and continue until frost: Russian thistle (Salsola pestifer) commonly known as "tumble weed," Orach or little annual salt bush (Atriplex Wrightii), careless weed (Amaranthus Palmari), greasewood (Sarcobatus vermicalatus) and sea blight (Dondia Suffrutescens). The most important member of this group is the thistle because its pollen is very light and the plant is very abundant. From the first of August until the middle of October there are three plants that produce toxic pollen; bur ragweed (Franceria Acanthocarpa), slender ragweed (Franceria tenuifolia) and cocklebur (Xanthium Speciosum). Of these the bur ragweed is most abundant and therefore the most important. There is another member of the ragweed family of local importance. This is the western ragweed (Ambrosia psilostachya) and the only true ragweed here. It differs from eastern plants of the same species in that the pollen grains are heavier and its radius of pollen distribution is more limited. Recapitulating these causative agents, early spring hay-fever can be traced to cotton wood. The ash is of little importance in this immediate vicinity. The cotton wood is very shortly followed by Bermuda grass which is frequently the cause of continued hay-fever from spring until frost, especially when supported by Johnson grass. These plants are followed by the mid-summer plants above mentioned, the worst of which is the thistle. Later in the summer the fall plants begin pollinating and continue together with the early summer and spring plants that run the whole season until all are terminated by frost.

Occasionally it will be found that a single sort of plant is the cause of a given case of hay-fever but most frequently several will be found to be contributing their respective portions of toxic protein. If the patient is found to be sensitive to the pollen of a single species it is only necessary to desensitize him against that particular pollen. If the patient is found to be sensitive to more than one species of plants belonging to the same botanical group it is only necessary to select the pollen to which he is most sensitive, i.e., the one producing the predominating reaction and desensitize him against that pollen, because when this is successfully accomplished his sensitization to other species of the same group will spontaneously disappear. But if the patient is sensitive to pollens from plants belonging to different groups it is then necessary to desensitize against each group separately and with separate courses of treatment, because desensitization to one biological group will convey no tolerance to an unrelated group. These separate courses of treatment may be administered concurrently or at different seasons depending upon whether different groups pollinate concurrently. If the treatments are given at the same interval the doses

should be administered on alternate days. Each case of hay-fever is an individual problem and there are two phases of fundamental importance to to what particular pollen or pollens the patient is sensitive and the which the patient is sensitive and the second is to determine in a quantitative way the degree of sensitiveness. The first is for diagnosis and the latter is to be used as a guide in treatment. The pollens to which the patient is sensitive are detected by the use of the cutaneous test. This is a procedure for reproducing on the skin the same sort of congestion, swelling, etc., that prevails in the conjunctiva and mucosa of the nose and throat during an attack of the disease. It is absolutely harmless, the technic is simple and the results are specific. It makes known the pollens to which the patient is not sensitive and brings out with precision the exciting cause. The test is accomplished by having in stock the pure dry pollens or a freshly-made one to fifty water solution of the pollen protein. The flexor surface of the forearm is cleansed with alcohol and allowed to dry. With a sharp scalpel two small cuts forming a letter X are made an inch apart for each test. The knife edge is simply pressed against the skin with no drawing motion, so that with as little trauma as is possible the outer layer of the skin is penetrated without drawing blood. As much dry pollen as will remain on the point of a fan-shaped toothpick is placed upon the cuts and moistened with a drop of tenth normal sodium hydroxide. This pollen past is worked into the cuts with the point of the toothpick to promote absorption. This is done with separate toothpicks for each pollen to be tried and kept moist with sodium hydroxide for thirty minutes when they are all washed off with alcohol, and the reactions noted. A control is made on which no pollen is applied but is kept moist with the alkali during the test period. If the pollen extract is used it is applied directly to the cut without the use of the alkali. A positive reaction consists of a raised urticarial wheel surrounded by a zone of erythema. No reaction should be considered as positive unless it measures as much as 5 m.m. in diameter. Patients highly sensitive to any one member of a botanical group will usually react more or less to other members of the same group. For instance, if a patient is highly sensitive to Bermuda grass he would also be expected to react in some degree to Johnson grass, etc. Occasionally a highly sensitive patient will be found who will react to all hay-fever producing groups in the vicinity and to every species in each group, consequently reactions are obtained from each pollen applied. The latter would require a separate antigen and a separate desensitizing course of treatment for each group.

After having determined the causative pollen or pollens, the next step is to prepare a suitable antigen or antigens for treatment. If the treatment is preseasonal a dilution of 1:10,000 will most likely be the highest dilution required. If the treatment is co-seasonal and the patient is suffering from hay-fever at the time, the highest dilution required will most likely exceed 1:10,000. For a preseasonal treatment dilutions of 1:100, 1:500, 1:5000 and 1:10,000 should be prepared. A solution test is then done with the 1:10,000 dilution. This test is done in the same way as the diagnostic tests except one drop of the solution is removed from its vial with a sterile hypodermic needle and applied to the cut. If any appreciable reaction occurs from this test a 1:20,000 dilution should be prepared and the test repeated. Treatment should not be begun with a dilution strong enough to excite a skin reaction. The average schedule, given according to the degree of sensitivity of the patient, is as follows:

Of the 1:10,000 sol.—
1st dose—1½ minims.
2nd dose—3 to 4 minims.
3rd dose—5 to 6 minims.

Of the 1:5000 sol.—
4th dose—3 to 4 minims.
5th dose—4½ to 5½ minims.
6th dose—6 to 7½ minims.
Of the 1:1000 sol.—
7th dose—3½ to 4½ minims.
8th dose—4½ to 6 minims.
9th dose—6 to 7½ minims.
Of the 1:500 sol.—
10th dose—3½ to 4½ minims.
11th dose—5 to 6½ minims.
12th dose—6 to 8 minims.
Of the 1:100 sol.—
13th dose—3½ minims.
14th dose—4 minims.
15th dose—5 to 6 minims.

The injections can be given every day until after the 1:5000 dilution is completed, then every second day for the 1:1000 dilution and every third day until the treatment is completed. If the 1:10,000 dilution is not beyond the threshold of the patient's sensitivity, as shown by the solution test, weaker dilutions must be gone through with before the above schedule is begun. After the treatment is completed the patient should again be tested with the diagnostic material to ascertain if he has really been immunized. If the diagnostic test still remains positive the treatment should be repeated. All preseasonal treatments should be begun six weeks or two months previous to the pollinating season of the pollen to which he is sensitive. This will give plenty of time to repeat the treatment if a repetition is found to be necessary. If a marked reaction occurs during the course of the treatment it should be stopped there and the dosage returned to that of the previous injection which produced no reaction.

The best time to treat hay-fever is six weeks or two months before it begins but unfortunately the majority of cases do not come under professional observation until they are in the midst of the season. The patient is then absorbing daily an unknown quantity of toxic protein from exposed mucous surfaces. This makes his sensitivity considerably greater and the dosage more confusing. Since great care must be observed to keep the dosage just below reaction, a dilution as high as 1:20,000 will practically always be required and in many cases higher dilutions will be necessary with which to begin treatment. Each case presents a problem all its own and the beginning point of treatment is found by preparing additional dilutions and reapplying the solution test. Complete cooperation of the patient is necessary and with this good results can be obtained in about eighty per cent of these cases. Follow-up treatment may be required in the co-seasonal as well as in the preseasonal cases and for this reason the diagnostic test should be reapplied after each treatment is completed.

The manner of gathering pollen for this work is of considerable importance. Most of the air born pollens are given up easily and completely to the wind by the natural opening of the anthers when the pollen is ripe. The pollen should be mature when gathered, which necessitates a close observation of pollinating plants because the anthers open rapidly and shed quickly. The flowers should be gathered when the pollen grains have attained their full size and just before the anthers are ready to open. The stems are placed in a flat pan of water and the flowers allowed to extend over the sides. The pan is placed on a table covered with paper which extends well beyond the overhanging flowers. In this condition the pollen cases will open in their natural way and the pollen will collect on the paper. If the flowers are gathered in the proper stage, shedding will begin within a few hours and continue for three days. The time for complete shedding will vary with the different plants. Each flower should be tapped gently once each day to jar the pollen to the paper. When the shedding process is complete the pan and flowers are removed and the pollen collected by sweeping it up with a clean paint brush. It is then sifted through a 200 mesh sieve to remove any shattered leaves, broken anthers, etc. Pollen collected in this way will be 95 to 100 per cent pure. The pans should be kept out of a direct sun-

light and away from a draft. Cottonwood, some of the weeds and Bermuda grass shed nicely in this way. Bermuda grass begins shedding very quickly after it is cut and the florescences should be gathered early in the morning while still moist with dew. It should be kept moist by wrapping in wet cloth until placed in the shedding pans as quickly as possible after cutting. Some of the pollens adhere so loosely to the anthers that the use of water pans is unnecessary. Bur ragweed, for example, will shed by a simple drying process. The florescences are gathered and spread thinly on paper and allowed to dry. When thoroughly dry they are lifted off the paper and the pollen is brushed up and sifted. There are a few plants, cocklebur, for example, which cannot be made to shed naturally. In this case the flowers are dried and the anthers stripped off by hand. They are then cracked by a grinding process and the pollen grains sifted from the crushed anthers.

There seems to be a wide difference in the toxicity of pollen from the same sort of plant when grown under different climatic conditions. There is a difference in the appearance of the plants. Two years ago I began gathering pollen with a view to determining the local anemophilus plants. After having gathered several pollens I began using the pure pollen as test material, and checking the result against like pollens obtained from an eastern biologic manufacturing company. The result was striking in that marked reactions would frequently be obtained with the local pollen and little or no reaction with the eastern grown pollen. Thinking that perhaps the particular batch of test material I had was faulty, I obtained test material from four different biologic concerns and ran tests concurrently on a series of cases. The result was the same as previously observed. The local pollens would frequently give marked reactions with little or none from any of the others. If this were true of the test material it would follow that the same would hold for the treatment antigen. Last year I ground pollen, extracted the protein and prepared treatment antigens in my own laboratory, and feel safe in saying that the results obtained were far better than any I had previously observed. There were about twenty cases treated with this sort of antigen and many of them were relieved. Some were not properly followed up and others did not complete their treatment. The process of preparing treatment antigen from dry pollen is a laborious task without considerable special equipment. A quantity of each of the various local pollens was gathered last summer for the Arlington Chemical Company and sent to them. I have been able this year to obtain from them antigens in concentrated solution, so now it is simply a matter of making dilutions of these antigens to treat any given case.

THE PHYSICIAN AND THE SCHOOLS*

OSCAR S. BROWN, M. D., Division Surgeon, A. T. & S. F. Railroad, Winslow, Ariz.

The physician in every community owes something else to that community other than to respond to calls, do the best he can for those entrusted to his care, and collect his fees.

The first duty of modern scientific medicine is to prevent disease, and the cure of disease is a secondary, although a very important, part.

Only a few years ago physicians concerned themselves with a disease only after it had made its appearance in the community.

But nowadays we are beginning to reason things as to cause and effect, and greatly to the credit of the medical profession, which sets it apart and elevates it above every other science, is that its chief aim is to abolish and to end that upon which it largely depends for its very existence—disease.

(*Read before the Annual Session of the Arizona State Medical Association, at Phoenix, Arizona, April 24-26, 1924.)

The physician, being one of the best educated men in the community, should take a part in everything which will tend to make that community a better place in which to live and where the health conditions are of the best. This entices or allures the best people of families to become permanent residents.

The physician, on account of his special type of education, is oftentimes the only one in the community who can advise and educate the parents and children as to how best to prevent disease.

A community may have exceptionally large and fine school buildings, yet they may be the best places for the breeding of infectious diseases because large numbers of children come in contact with each other every day, and the proper steps may not be taken to protect them from the infectious disease.

Epidemics among school children may occur without killing any of them or leaving any of them permanently damaged. Even so, children are kept away from school, the home inconvenienced, promotions are interfered with and, in many instances, the babies and younger children at home are exposed to the disease.

Now, who is responsible for seeing that the school children are protected? Our first thought is of the school board, the health officer and the school nurse. The physician is the one to assume the responsibility of furnishing the necessary instruction and education in the community as how best to prevent disease. He should take time to visit the schools and talk with the children, to meet with the Parent-Teachers' Association, and discuss ways and means to prevent disease in the schools and at the homes.

Purchase some late reliable work on Public Health and Preventive Medicine, study it and try to master the prevention of the more common epidemic diseases, those which school children mostly have, get some slides and pictures to show something of these diseases. Then occasionally give a general talk to the parents and older children at the school house. In this way you make a lasting impression, especially on the children.

Your State Board of Health will gladly supply you with literature issued by U. S. Public Health Service, telling in a condensed form of each of the contagious diseases and of the methods of prevention. These are given to the parents, older children and those interested in the prevention of contagious diseases.

In your talks try to impress them with the importance of absolute cleanliness in school and in their homes. I might add that you should so keep your own office that, at all times, it is a silent reminder that you practice what you teach.

Talk of the teeth and of their care, of the functions of the skin and importance of the bath; to the parents and older children of toilet conditions and of the danger of disease; in the rural districts of the earth .toilets and of their care.

Tell them of the great benefits of the use of the well tested and established serums, antitoxins, etc., in preventing and curing diseases. Dwell upon typhoid fever, its prevention by prophylactic vaccine, how the disease is conveyed by water, milk, etc.; how to make drinking water safe, by boiling, etc.

Tell them of the Schick Test, of the giving of the toxin-antitoxin to develop an immunity, often during balance of life, to diphtheria.

Dwell upon the importance of reporting every case of sore throat to the Health Office or to some physician.

Rabies deserves attention. Children have heard of the "mad dog" from earliest childhood. Tell them of the peculiar actions of the rabid dog; better still, show them some pictures; I cut out some and put on cards and show them with the balopticon. This impresses them much more than just talk. Give them a short history of Pasteur and of the treatment, going into it quite well.

Trachoma should have its seriousness told to parents and children. If possible, show slides of it and give a short description of the disease, its symptoms, ravages, prevention and cure. Urge that all school children should be inspected, at least once a year, by a competent nurse or doctor. The lids should be turned and examined in a good light.

Smallpox deserves quite an extensive talk, especially as to its prevention by vaccination. Explain to them that it is a surgical procedure and that when done with surgical cleanliness no bad results follow.

Scarlet fever, measles, mumps, etc., each should have short talks as to prevention, telling them of the manner of conveyance of each one.

Tuberculosis has its place in these talks, more so when often one or more homes sending children to school have a case of this disease.

Last, and of great importance, instruct both parents and the children over fourteen years of age regarding social hygiene. It is best to talk to the boys and men alone, and to the mothers and young girls alone.

The U. S. Government will aid you in securing slides and cards for young men and women. For young men the "Keeping Fit" sets are of value in this work, as are the ones for "Young Women and Girls."

Few people realize what physicians know, that during the great war France lost about 1,350,000 lives, that the U. S. A. during the same period lost about the same number by syphilis, leading by a wide margin tuberculosis, which is next on the list.

I hear you say, "I cannot take time to do what you have outlined; I am a busy man; it's impossible." You can take time; you should do this studying; you need it to properly discharge your duties as a physician to those who employ you. Besides, if you look only to the selfish, self interest side, it will pay you. It is good business.

The thought I wish to leave with you is that each one of us has a common responsibility in seeing that the schools in our communities, whether they be country, town or city, are safe places in which the children can meet and work. That they are not breeding places for epidemic diseases and therefore a menace to the children, the community and the state.

DISCUSSION

DR. H. R. CARSON (Phoenix, Ariz.): The speaker is school doctor in Phoenix to about eight thousand children. We have two school nurses to assist with the examination of these children. At the beginning of the year the children are first examined for trachoma, because of the prevalence of trachoma among the Mexican children in this district. The rest of the year is spent in routine examinations and special cases sent to the school office each morning by the teachers. Physical defects are called to the attention of the parents, that they may have them cared for by their family physicians or, if indigent, by the free clinic of the Social Service Center. We can point out the defects, but we cannot force treatment. Christian Scientists, who do not believe in medicine; Pentecostals, who believe in prayer to cure; and others, who are antagonistic to the medical profession, fail to care properly for these defective cases. So, naturally, when these children enter the University they still have their defects. Our High School does not maintain any nurse or physician for medical supervision, nor do many of our rural schools. Sometimes, our own profession seems to be forninst the school nurse and school doctor and assure the parents of these defective children that the children are all right and need no attention.

We have one room, called the Open Air Room, with accommodations for twenty underweight children—not tuberculous children, but those with predisposition to tuberculosis. The room is entirely open upon two sides, except for screens. The children are transported to and from school, receive milk at morning and afternoon recess, get a hot lunch at noon, and have an afternoon nap. Children are selected for this Open Air Room and we have need for more accommodations than we now have.

One of the greatest difficulties of the school doctor is exclusion of children of families having contagious or infectious diseases. Frequently minor or mild diseases of childhood are not seen by a doctor and reported to the Health Department; but when seen by a physician are often not reported, and frequently, when reported, are not quarantined. This allows rapid transmission of these diseases through the schools and frequently increases the severity of a previously mild disease. Let us hope that our profession will, in the future, use greater care in sending children to school from homes where other children have contagious diseases. A modified quarantine in a home where the wife is

nurse and cook to the rest of the family is not much of a quarantine.

DR. Z. CAUSEY (Douglas, Ariz.): Rosneau has said "that we have at last found out that we send the physical as well as the mental part of the child to school." In other words, we have learned that we send the whole child to school. This is a very encouraging and valuable discovery from the standpoint of both mental and physical fitness. It is not possible to develop a well rounded man or woman without giving very close attention to the physical as well as the mental makeup of the child. It is my opinion that but few, if any, of our schools are doing their duty along this line. Yet we are doing more each year and the results being obtained will eventually bring us to do our full duty toward our children. Medical inspection of school children is a comparatively new innovation. I believe it was in Philadelphia in the year 1894 that this work was first begun. It was done at first for the purpose of controlling contagious diseases among school children. The experiment was found so successful that other large cities of the East adopted the system in rapid succession, until now it would be difficult to find any city or town of any consequence that is not making a stab, to say the least, at some form of physical inspection of school children. I believe that medical examination of school children is one of the greatest preventive measures that has been undertaken to date and such a pity it is that the heads of our schools are so slow in recognizing the great and far reaching value of it.

Dr. Van Horn spoke of his experience in examining university students. What a lamentable state of affairs! When we send so great a percent of our boys and girls to the university, there to find that they have some physical disability that will hinder them in their university work, to say nothing of their physical inability to cope with the arduous duties involved in our modern life when they are out of school. Parents do not know these facts and will not until we have annual physical examination of every child who attends our schools. When this is done we will cease to send such a large percent of our boys and girls to the university, there to find out for the first time that they have some physical defect which might have been obviated or cured had the fact been discovered earlier. This public health measure should not be allowed to rest until every school in the state has adopted a thorough system of annual physical examination of every school child. I think the doctors would be willing to give some time to this important work at the beginning of each school year, or a better plan would be to employ school physicians for the work.

I am still preaching that the medical profession is not doing its duty in presenting these questions of public health and in insisting that those in authority put into practice the many curative and preventive measures that have been found so useful for the protection and development of the school child, the future citizen of this great state.

DR. J. B. VAN HORN (Tucson, Ariz.): It might be of some interest to you, in this connection, to know about what the state of affairs is with the students as they arrive at the University. At the beginning of the first semester, we examined 597 boys. Out of that number there were 222 cases of manifestly diseased tonsils; there was pulmonary tuberculosis of sufficient extent to reject 68 boys from military training; there were 43 cases of organic heart disease. I do not know just how far the physicians are responsible for those conditions, but it looked to me, as we went through and tabulated our findings of our school children that have reached the University age, that our percentages are pretty high. There must be a great deal of room for improvement in the health of school children when they are still carrying as many of those diseases through childhood and up to the University age.

Those are some of the bad things we found out at the physical examination of our students. We also found our good side. One thing that we are very proud of is that out of that number of examinations, together with 128 more at the beginning of the second semester, we still have to find our first case of venereal disease, and, up to the present time, we have not seen a case of venereal disease in the University student body.

LEPROSY, WITH REPORT OF A CASE IN ARIZONA

NELSON D. BRAYTON, A. M., M. D., Miami, Arizona.

A case of sporadic leprosy is a matter of never failing interest to the body politic of the community in which the leper is discovered, and an unusual scientific interest is precipitated by the occurrence of so rare a disease. Hence the reporting of this case.

Lepra, an endemic disease, is contagious in type and is due to the Bacillus Leprae, discovered in 1871 by the Norwegian physician, Hansen. Its occurrence produces structural changes in the skin, mucous membranes, nerves, bones, and other tissues, with resulting ulceration and

configuration of involved tissues which at times cause serious actual deformity and mutilation.

Occurrence is restricted to no land or country, although the north temperate zones are remarkably free from the disease. There are probably 3,000,000 or more lepers in the world, the vast majority of whom are in China. India, Japan, Arabia, Africa, South America and the South Sea Islands are endemic foci of the disease, and Mexico and the West Indies have its unpleasant prevalence.

In the United States, regions in Louisiana, California, New York and Minnesota have a constant leper problem with a census of about two hundred lepers.

It is doubtful if the remainder of the entire United States would increase this number to 250. Hence we may infer that the United States has but one leper to each 400,000 population.

The Bacillus Leprae is the causative factor. It stains similar to Bacillus Tuberculosis, with which it is morphologically comparable. Specimens are readily obtained from any leprous nodule or nasal smears. When present it is found in astonishingly myriad numbers. The irritations of these bacilli give rise to the group of granulation tumors so similar to those of tuberculosis and syphilis, and the large round leprous cell with vacuoles is as distinctive as the leper bacillus.

SOURCES OF CONTAGION

Period of infectivity. All leprologists believe the nasal mucous membrane the most likely port of entry of the bacillus. Initial lesion, or ulceration and history of the same is invariably absent. Repeated shocks of the bacillus are believed essential to infection. Thus one may live with lepers for years and never show manifestations of the disease. Then the unhappy moment of lessened resistance appears; the leprous shock prevails and the individual becomes leprous. The shortest reported period of infectivity is three months. Longer periods of ten to twenty years are much commoner. Immunity seems to be confined to the temperate zone white Caucasian race. It is questionable if a dozen cases have been acquired in the United States by pure Caucasian whites of long time residence. The reason of this immunity is entirely unknown.

TYPES OF THE DISEASE

Two distinct types of the disease are recognized; the tubercular type and nerve leprosy. The tubercular type is essentially a skin multilation. Enormous quantities of the bacillus producing the distinctive lepra cell intermingled with small round cells and sclerous fibrillation produce the odd nodulations which with contractures create those mutilations which make leprosy instantly recognizable and repulsive. Hence the enlarged pendulous ears, the hanging cheeks, the furrowed brow, the atrophied nose, the sclerosed cornea with resultant blindness, the alopeciated eyebrows, the retracted fingers, the gangrenous, ulcerous edematous calves and ankles.

The nerve involvements produce a different type. Here we have the man-en-grif hand, the perforating ulcers of the foot, the mental hebetude, absolute and profound, the hyperesthesias, the sexual impotence, the skin atrophies, the glandular decadence and ofttimes death, swift and terrible.

Both types may intermingle and it is rare not to be able to feel in any leper an enlargement of the superficial ulnar nerve which spells some involvement of the whole nervous structure.

PROGRESS AND TREATMENT

Like all bacillary diseases producing granulomatous tissues, leprosy may be self-limiting or may run its own fatal course. Periods of abeyance are the rule mingled with ever increasing severity of its recurrence. He may live five years; he may live 30 years. Then intercurrent disease, notably pyemia or pneumonia shortens his life. In the United States the span of life is reckoned as about ten years.



Treatment is varied. Alterative, tonic, reconstructive, serological. The similarity of pathologic lesions to syphilis has suggested the usage of bichloride of mercury and salvarsan. The similarity to tuberculosis has prompted the use of serums and in return the similarity of the stain of the tubercle and leper bacillus has prompted the usage of an empiric drug, chaulmoogra oil, in tuberculosis. Of all the numerous remedies chaulmoogra oil or its derivatives seem to hold the highest place.

PROBLEM OF UNITED STATES LEPER

Congress has enacted legislation and erected at Carrville, Louisiana, an United States Peprosorium. Here lepers may be treated at the expense of the government. Unfortunately, sufficient funds are not at the disposal of the United States Public Health Service to provide for all lepers offered by the various states to this asylum, and Congress must be prevailed upon to increase the amount of its allowance to this institution and thereby increase the capacity. So far, no Arizona leper has been enabled to enter this federal institution.

REPORT OF A GILA COUNTY LEPER

Individual, Juan Ortego, age 38, was a patient of mine seven years ago. At that time was a laborer on the Miami High School Building. Had no ulcerations, had atrophy of finger nails and beginning man-en-grif hands. He disappeared from the community when he was questioned about his leprosy. November 13, 1923, he reappeared in Miami and lived in abandoned mine tunnels away from town; rarely was he seen in town and then only at night. Again seen and recognized by me November 17, 1923. Has leonine expression of countenance, alopecia of eyebrows, enlarged ears, nose, ulcerous and tubercular, thickened cheeks (see cut of photo), retracted finger nails, and terminal phalanges shrunken away, numerous leprous nodules over body, erythema on trunk, atrophy of skin over abdomen. No perforating ulcers, deep laryngitis, intense photophobia and lacrymation, with nasal hemorrhages.

TREATMENT

Chaulmoogra oil, 20 drops t. i. d. Improvement notable and marked. Open sores drying up. On March 14, 1924, deported to Mexico under laws of undesirable alien. This patient had once before been deported to Mexico from Coconino County, but as he had relatives in Gila and Graham Counties, decided to return to Arizona.

DISCUSSION

DR. BRAYTON: I would like to say in opening and closing this discussion that at three o'clock yesterday afternoon I was called in consultation by Dr. C. Sotel to see on Alderman Street in Miami a woman about sixty years of age. She had been a resident of Miami and Globe for seven years and had not been out of Gila County in that time. She had a well-marked case of leprosy, the duration of which she recognized as about six months.

Four months ago I was called to Turkey Shoot Canyon, one of the suburbs of Miami, and there I saw a patient whom I wanted and expected to see again, but she moved away the next day, and I am quite sure that this also was another case of leprosy the details of which I hope in the future to report more fully to our State Health Officer.

THE CURE OF PROSTATIC ABSCESS BY PERINEAL ASPIRATION*

W. G. SHULTZ, M. D., Tucson, Arizona.

In the treatment of this condition we have the liberty to choose between several methods, none of which can be chosen as the treatment par excellence. Lumb attempts to evacuate the pus into the urethra by pressure of the finger per rectum. But one attempt is made to deal with the condition in this manner. I have been successful in this way a few times, but always the abscess was very small and situated very close to the urethral canal. In some clinics we find attempts being made to evacuate these abscesses into the urethra by manipulation with the point of a small sound in the urethra. This method has numerous disadvantages in that it is a very blind method, seldom effective, and when it happens to be accidentally successful, generally gives insufficient drainage; it is ofttimes followed by an epididymitis and usually leaves a pocket which tends to drain and keep up a chronic infection. An intra-urethral incision through the endoscope is much to be preferred to this latter procedure, but

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should very seldom be the method of choice in dealing with these cases. It is not so blind a method as the above and not so difficult of accomplishment, but it has those same two disadvantages, viz., epididymitis and a chronic draining sinus. But little choice of method remains in dealing with abscess of the prostate since Dr. Barringer has discovered and perfected perineal aspiration for relief of this condition.

The origin of the procedure was as follows; during anesthetization of a cancerous prostate for the introduction of radium needles, a peri-prostatic abscess secondary to a carcinoma of the prostate was found and it was thought unwise to operate upon such a case. An ounce or more of pus was aspirated and the patient left to see if this would not relieve him. It did perfectly and there was no recurrence of pus. With this experience in mind, it was thought that the method might be applied to prostatic abscess secondary to gonorrhea and in this way avoid the more serious and accepted operation. If the procedure failed, the case would be in the hospital and a perineal section for drainage of the abscess could be done.

Dr. Barringer reports fifteen cases, the only ones in the literature, I believe. Twelve of these were gonorrheal in origin, one carcinomatous, one tuberculous, and one a cyst of the prostate. Complete data is as follows: No. 1, no pus. No. 2, few drops of pus. No. 3, pus, 16 cc. No. 4, no pus. No. 5, pus 15 cc. No. 6, pus 30 cc. No. 7, pus 30 cc. No. 8, small amount of broken down tissue. No. 9, pus 16 cc. from each lobe or 32 cc. in all. No. 10, pus 15 cc. No. 11, pus 60 cc. at first aspiration, 30 cc. at second. No. 12, pus 30 cc.

You will please note that only one case required more than one aspiration and that one only two. Also only one case is given of a bilateral abscess. These cases are all hospital cases, and, so far as I know, no ambulatory cases were treated in this manner other than the one which I am reporting tonight.

I have performed this operation several times with results very similar to those reported in the above series, none of which had to be subsequently operated by the perineal section method and all of whom presented a more complete and satisfactory recovery than generally follows the perineal section method of treating these cases. The period of convalescence is much shorter as well as more complete. It is free from the dangers of a urinary fistula which may follow the more radical operation. The urethritis may be cleared up more rapidly, probably due to the fact that treatment can be started very soon after drainage of the prostate by this method and there are no postoperative tender scars to interfere or make manipulation more difficult. Epididymitis seldom complicates it and the patient does not have lowered resistance due to a more or less protracted convalescence period as usually follows perineal section. Urinary retention is relieved almost immediately by this method and obstipation of the bowel contents as well.

The course of procedure is as follows: The patient is put in the lithotomy position and the perineum prepared as for operation, but no general anesthesia is given. With the gloved index finger of the right hand in the rectum the perineum is anesthetized with one-half of one percent novocain, using a 3¼-inch 18-gauge needle. The anesthetic is injected ahead of the needle. The needle enters between the urethra and rectum and the point of the needle is palpated just anterior to the rectum by the rectal finger during its course up to the prostate. This is important, as upon it depends the accuracy with which the needle is thrust into the different lobes of the prostate or seminal vesicles. From this point the needle is pushed forward into the lobe of the prostate in which the abscess is thought to be. A 5 cc. syringe, which should be used during the injection of the anesthetic, may now be used to apply suction or a rubber

bulb syringe of the Asepto type may be used. I prefer the latter because constant suction may easily be maintained by the bulb, making manipulation easier and the search more successful. If pus is found, it is aspirated, the needle being gently pushed backward and forward and the point rotated so that all the pus may be aspirated from the abscess cavity. If the bulb type syringe is being used, it is well after all the drainage has stopped and you are through manipulating the needle to apply suction by means of a 5 or 10 cc. glass syringe of the Luer type, as this will sometimes more effectually drain the abscess. Each lobe of the prostate is punctured, and if there is any suggestion of supra-prostatic abscess or abscesses of the seminal vesicles, these are likewise punctured and aspirated, the guiding finger in the rectum alays indicating the way of the needle.

This method, in all probability, had best be restricted to gonococcus infections, as it is only in these that real beneficial results are obtained. It is not contraindicated, however, in abscesses caused by staphylococcus, streptococcus, or colon bacilli, but most of these have to be operated subsequently by the perineal section method.

My experience outside of gonococcus infection has been limited to but one case, which was a perirectal abscess in which the colon bacillus was the causative organism. In this case there was complete urinary as well as fecal retention. I aspirated the abscess in the office, recovering 130 cc. of very foul smelling pus loaded with colon bacilli. His urinary and fecal retention was relieved as was also his pain, but the condition recurred in a few days and this time I aspirated 80 cc. of the same pus. I did not irritate the cavity with Dakin's, which I now feel might have made a difference in my results. He was again relieved, but a few days later was in as bad a condition as ever. I advised operation by perineal section, which was refused. A few days later the abscess ruptured into the rectum and he was relieved. I am wondering what the results might have been had I continued the aspirations and had I combined Dakin irrigations with it.

I wish to report the following case because of several unusual features presented by it as well as the fact that he was compelled to be ambulatory during the time of treatment and, excepting Sundays, spent no time away from his work.

A young man, age 26. Family and past history not important excepting that he had gonorrhea during the past several years about seven times and did not know whether he had ever been cured of any attack, but had always been able to get very satisfactory results by using a prescription which I shall mention later.

During the past eighteen months he had been free of any venereal trouble. About two weeks before reporting to me and three days following a suspicious intercourse he developed a discharge. Concluding that he had gonorrhea, he called on his druggist friend to get his favorite prescription filled. This is it:

Zinc Acetate—17 grains.
Tr. of Opium—½ oz.
Glycerine—½ oz.
Rosewater q. s.—4 oz.

Due to the fact that the prescription contained an opiate, he was compelled to get a doctor's prescription for same. This he had no difficulty in doing, due, I am sure, to the doctor's realization of the great therapeutic value of glycerine and rosewater in these cases, more than to the nominal fee which he charged for writing it. Strange to say, it did not work a very wonderful cure in this, his most recent, case, probably due to the fact that this last group of gonococci with whom he had associated himself was of an unusually sturdy family or perhaps had been exposed to the above prescription on some previous occasion in another abode and had inherited a natural resistance for this usually most effective remedy. The doctor who wrote the prescription could probably enlighten us as to the various reasons for its failure in this instance, but personally I am compelled to confess my inability to explain this rather unusual failure!

After about twelve days of the above treatment he began to notice pain in the region of the rectum and a sensation of swelling in the same region. He was unable to get a bowel movement and was compelled to use very drastic catharsis every day in order to accomplish this. He also noticed a difficulty in starting the urinary stream, which was very small in caliber when started and was accompanied by dribbling at the end of the act as well as a sensation of not having com-

pletely emptied his bladder. The urinary act was very painful and had progressed to almost a complete retention when he reported to me for treatment. Catheterization relieved him very greatly, although the passing of the catheter through the posterior urethra was a little difficult and painful.

Rectal examination disclosed a much enlarged fluctuant left prostatic lobe, which he said felt like the thing that was giving him his difficulty in getting a bowel action. The right prostatic lobe was very much enlarged, hard, fibrous, but no fluctuation was noted. The abscess in the left lobe was drained by the above method and 60 cc. of pus evacuated. His relief was almost instantaneous, and the right lobe was not punctured. That night and the next day his urinary and fecal incontinence were completely relieved, as was also his pain. Two days later the pain and urinary incontinence recurred, however, and upon examination the left prostatic lobe seemed to be filling up again, but only slightly. The right lobe presented the same thick fibrous unyielding mass as at the previous examination. It was punctured and 90 cc. of pus recovered. Relief was again very marked, but there still remained some difficulty in the urinary act. Three days later the pain recurred, as did also the urinary and fecal incontinence. Both lobes were aspirated and pus (70 cc. from the left and 30 cc. from the right) recovered. Each abscess cavity was irrigated with Dakin's solution. Relief very marked. Five days later the pain recurred and both lobes were again aspirated. Pus (15 cc.) was recovered from the left lobe and irrigation with Dakin's solution done. No pus was recovered from the right lobe, although a very extensive search was made. A few cc. of blood was drained from what seemed to be the old abscess cavity in this lobe, however. Three days later his pain was recurring and 10 cc. of pus was drained from the left lobe, followed by Dakin irrigation as before. Three days later his pain was again recurring and 5 cc. of very bloody pus was aspirated from the left lobe. The right lobe yielded none, but remained quite enlarged and very hard. His pain persisted for about three days, but gradually subsided.

This case is of further interest to me because had he been so situated that he could have gone to the hospital for operation I believe that I would not have attempted to treat him in this manner, but would probably have advised an operation. I must add that on about the third day following this last visit when he says the pain was diminishing, with urinary and fecal incontinence relieved, a friend offered to pay for his treatment and prevailed upon him to report to another doctor, who completely relieved and cured him in a few days by using a rectal dilator and heater. The patient described the treatment as being one of rectal dilation.

Full credit for developing the above procedure for dealing with prostatic abscess is due Dr. Barringer and is hereby acknowledged.

OCCIPITO POSTERIOR POSITIONS IN LABOR WITH TREATMENT*

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DEFINITION

Edgar defines it thus:

"The vertex presentation in which backward rotation of the occiput occurs in the first and second positions or in which a permanent occipito-posterior position obtains in the third and four positions. As a rule labor is prolonged in these cases, partly because the head does not flex properly on entering the pelvis and then does not descend into pelvis readily, partly on account of poor internal rotation."

Of all the complications that arise in labor, that cause delay, worry and trouble, posterior positions easily head the list. Then, too, they are more easily and frequently overlooked by the average practitioner than any other complication with which I am acquainted. Especially is this true in primipara, because many times the abdomen is so tight that an external examination helps very little and with a slight dilation of the os, one is at a loss to know just what position he is dealing with. In fact occasionally in the beginning of labor in these tight abdomens where the presenting parts are high and not engaged, we are unable to make out presentation satisfactorily, much less position, no matter how much we may flatter ourselves we may know about the matter.

As to the causes and diagnosis of these positions, there is very little difference of opinion and since this is true, I can do no better than to quote

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from Berkeley and Bomney on the causation and diagnosis, since they have stated the matter most concisely and succinctly. But when it comes to treatment, we find many divergent views and opinions, and I shall quote from these and give my own views at length later on.

CAUSES

The cause of this malposition is deficient flexion of the fetal head. This deficient flexion may be due to:

(a) Extension of the fetal spine, due in its turn to the maternal spine pressing against it when the back of the fetus is posterior to start with. Owing to this the head becomes extended and the forehead may be well in advance of the occiput, in which case the pelvic floor rotates it forward.

(b) As the head enters the pelvis, with the occiput posterior, the biparietal diameter, which is the broadest transverse diameter of the fetal head, will be lying backwards in a part of the pelvis where there is least room, whilst the bitemporal diameter will be lying forwards where there is most room. The head will therefore be gripped more tightly at the biparietal diameter, which is situated posterior to the fetal spine. As the direct uterine force is applied along the fetal spine, that part of the head most loosely engaged will be driven downwards, so that the forehead becomes lower than the occiput, with the same result as mentioned in (a).

(c) If the head is larger than normal or the pelvis smaller than normal, then the occiput as it enters the pelvis posteriorly will press tightly against the posterior inclined plane, which will direct it backwards into the hollow of the sacrum.

(d) If the fetal head is small, it may slip through the brim before it has become flexed. That this is not an uncommon cause of unreduced occipito-posterior positions is seen from the fact that in nearly 50% of these cases, the head is smaller than normal. Other causes given are old lacerations of the pelvic floor where resistance is increased, in disproportion between head and floor, as in very roomy pelves, or in undersized heads, in uterine and abdominal inertia and in certain deformities of the pelvis, such as justo minor pelves, kyphotic pelves, or in an unusually prominent and protruding promontory of the sacrum.

DIAGNOSIS

The diagnosis may be made by abdominal and vaginal examination.

Abdominal Examination: If in an abdominal examination, the limbs of the child are felt well to the front and much more easily than usual, whilst the back cannot be felt well and is turned towards one or other flank, this is an indication that the occiput is lying posteriorly, a supposition further enhanced if the fetal heart cannot be heard at all, or only faintly towards the loins.

Vaginal Examination: On vaginal examination the position of the occiput can be determined by the fontanelles, by the moulding of the head, and by the ear.

The anterior fontanelle will be easily felt on the right or left, as the case may be, and pointing forwards, whilst the posterior fontanelle can only be reached with difficulty, this, of course, being the opposite to what usually obtains.

It may be that, owing to the prolonged moulding and pressure, the caput succedaneum will prevent the fontanelles being felt, in which case the moulding of the bones may help in the diagnosis, for if it be remembered that the occipital bone is depressed below the two parietals in the moulding, then if one bone is felt overlapped by two, the practitioner will recognize that this is the occiput. Again, the two frontal bones are depressed below the two parietals under similar circumstances, so that, if two bones are felt to be overlapped by two others, the position of the frontal bones will be thus determined.

If this overlapping of the bones cannot be detected, then the practitioner must pass his hand into the vagina and feel for an ear, the free border of which will indicate the direction of the occiput.

To the above, as taken from Berkeley and Bomney, I want to add this: that when in doubt as to whether you have a posterior position, you will find that in posterior positions dilatation proceeds very slowly indeed and there is more likelihood of premature rupture of the membranes. So look out for a posterior position whenever you have tardy painful dilatation. I believe this slow dilatation is due to the lack of irritation of the nerve fibers in the external os, because of poor adaptation of the head to this portion of the lower uterine segment. This I will mention later in discussing the use of bags.

I want to add this to the diagnosis and it will apply to any condition where there is doubt as to the presentation or position. If it is necessary to know position, do not hesitate to introduce the whole hand into the vagina and into uterus also if required. Naturally your patient must be anesthetized for this, but in my opinion the knowledge and benefits derived from this procedure outweigh the dangers incurred. By so doing you are no longer in doubt, and many times cannot be sure of position in any other way.

FREQUENCY

Here there is a wide difference of opinion. Of the persistent forms, Edgar states that some 1 to 4 per cent occur, more than half of these occurring in primipara. This does not refer, however, to the percentages that start as such, for the total is largely in excess of that number. Williams gives the number as over 16 per cent and Irving Potter, of Buffalo, whose work I have seen and who delivers double as many women per year as any individual in the world, and who does most of his deliveries by elective versions and thus does not wait for complete engagement, tells me that he finds of a series of 200 versions, eighty-five were performed in primipara, and 115 in multipara. Forty of these were seen in consultation with physicians, and thirteen were in the care of midwives. One hundred and twenty-six cases were left occipito-posterior positions of the vertex. Forty were of the right occipito-posterior variety. But many cases that lie as posterior during pregnancy enter the pelvis as anteriors when labor sets in. For some reason, the explanation of which I have never found satisfactroy, five out of six posterior positions are of the right rather than the left variety.

TREATMENT

This may be divided into prophylactic and active or operative. Little can be expected from prophylaxis other than having the patient lie on the side to which the occiput points. This can be helped by placing folded blankets or pillows under the hips so as to make the side position more extreme, thus assisting rotation of child. Efforts at placing the patient in the knee, chest, or trying to change position by external manipulation has very little permanent effect.

One of the most important elements in treatment entering into these posterior positions which are prone to be long drawn out and painful, is to conserve the strength of the patient and thus her expulsive powers, by giving appropriate doses of drugs that tend to give rest and ease, while waiting for dilatation, which as already indicated is nearly always slow and painful. Of these agents, in my experience, none compare with some derivative of opium with scopolamin hydrobromid. Of these, I prefer morphine combined with scopolamin. I usually start with ¼ or 1/6 grain of morphine, with 1/200 of scopolamin and repeat with 1/8 or 1/6 of morphine, with 1/400 or 1/200 of scopolamin, every 2 to 6 hours, depending on effect, until dilatation is complete, or nearly so. If, as sometimes happens, these drugs excite, rather than soothe the patient, I substitute chloral hydrate and bromide of soda by mouth, in doses of 15 grains each, or double that amount per rectum, if not tolerated well by mouth. These doses are repeated in 1 to 3 hours, as indicated. Both of these methods seem to have a softening effect on the os, and aid in its dilatation, how, I am unable to say. If, after a pe-

riod of 12 to 24 hours, dilatation is not proceeding as it should, I then resort to bags, inserting the largest size that the cervix will accept and putting in a larger size if need be, when the smaller has been expelled, continuing the bags and sedatives until dilatation is complete, or gives promise of soon being completed. These bags seem to aid greatly in dilatation both by their hydrostatic and pressure effects, and also by close contact with cervix, irritating those nerves in the cervix which a poorly fitting head cannot do.

All of these means are to conserve the woman's strength so that she will not be worn out at futile efforts at dilatation and delivery and will have the necessary strength left to push the child through and thus deliver herself. Now, if, after a reasonable time has elapsed and the woman has labored hard, she seems unable to deliver herself, it is most probable that the case has resolved itself into what is known as the persistent type. However, even here, if pains are strong and the fetal heart sounds are good and the mother is not too much exhausted, the waiting method may win in the end. But if the woman is becoming exhausted, or the fetal heart tones are becoming impaired, we must resort to some operative method. In our choice of methods we are guided by the amount of engagement. First of all, do not attempt operative procedure of any kind until you have a dilated or dilatable os. Again, you must have anesthesia if you are to succeed in any operative interference. If the head is high and will not engage, and luckily these cases are few, then in my opinion podalic version is indicated, provided the waters are not all drained away and the lower uterine segment is not too thin, or the uterus in tonic contraction, when efforts at version might cause rupture.

In my experience the danger to mother is very much less with version than with high forceps, and the damage and danger to child no greater. I have seen heads crushed and mothers badly lacerated with efforts at extraction in high posteriors with forceps. In fact I believe that podalic version is preferable to high forceps under almost any condition.

In some cases where the vagina is short and lax, I have succeeded in pushing head up, before it became too well engaged, with two fingers in vagina and then pressing parietal part of head up and to right or left, as the case may be, at the same time pressing with other hand on temple of child in an opposite direction and then rotating and forcing head down into pelvis again. However, this can seldom be done and only under most favorable conditions.

However, there is one other method which may be tried not only in high but in medium types, which offers hope of success, and which I advocated some twenty years ago in a paper read before the Texas State Medical Association at Waco. At this time there had been very little said about this method and I could find but one reference in literature to it. I refer to the method of manual rotation of the occiput. With the patient on the back, hips well over edge of table and legs held by assistants, the hand is passed through the os, head grasped, and if engaged, gently pushed out of the pelvis and rotated anteriorly; at the same time the external hand reaches into the flank and rotates the body; otherwise the rotation will not remain. Then, when sure of rotation, I continue to hold my hand on the head and my external hand on the child, to maintain the position gained until pains return and the head is guided into the anterior position. The quick return of the contractions is aided by four minims of pituitin and stoppage of the anesthetic. For right posterior, the left hand is used, and for left, the right hand. Occasionally external pressure on the fundus will help in this engagement. Then, too, in some instances the fingers may slip past the head and grasp the shoulders and thus facilitate rotation. Always retain the grasp on the head with the fingers of the internal hand and assist and retain rotations with the

external hand until engagement occurs in the manner and to the extent desired. Now with the head anterior and engaged you can either wait for the natural expulsive forces to complete the delivery, or you can place on forceps and deliver, depending on condition of infant and mother. Always give careful attention to the fetal heart sounds in all these maneuvers, for the manipulations necessary may interfere with the fetal circulation and necessitate rapid delivery. In fact, the one great danger in this method is prolapse of the cord and the thing that one must guard against most carefully. I have used this method many times with great success and regard it as the best method of all when applicable. With an impacted head, or a tonically contracted uterus, this method is not to be tried.

In my earlier experiences I rotated the head half a circle rather than a quarter; that is, R. O. P. to L. O. A., but later I found this unnecessary. This method is worth a trial in nearly all cases. This is a method that I saw Dr. De Lee use two years ago, and the method that I think he prefers. However, he does not risk letting loose of the head after rotation, but prefers to grasp the scalp with a pair of tenaculum forceps and hold the head in position until he can apply the ordinary obstetrical forceps, thus delivering as any anterior position. Edgar favors bringing the head to the perineum with the pelvic application of forceps and removing same and making a cephalic application and gradually rotating as he delivers. Some prefer the Scanzoni application of the forceps, and in proper hands this works well, but unfortunately there are very few proper hands. One exception, of my acquaintance, is Dr. George Clarke Mosher, of Kansas City, Mo., one of the leading obstetricians of the middle west, who is quite an adept at this method and uses it in nearly all his persistent cases.

CONCLUSIONS AND SUMMARY

1. As to diagnosis, acquaint yourself with and practice in all cases diagnosis of position by external methods, for in the early stages of labor and often later more is to be learned regarding position by this means than by internal examinations.

2. Do not neglect pelvimetry, for to know your measurements aids you in prognosis and the management of your case.

3. Remember that poor and slow engagement, irregular pains and tardy dilatation are very suspicious signs of posterior positions.

4. When in doubt as to position, do not hesitate to introduce hand into vagina and into uterus also, if need be, in order to be sure of your diagnosis.

5. Do not forget that by conserving your patient's strength with the drugs mentioned, until dilatation is accomplished, you have left her with a surplus to finish the delivery, whereas if she is worn out with futile efforts at delivery, she will not have the courage and strength left to finish the final ordeal.

6. If dilatation does not proceed satisfactorily, use bags, for as a rule they are easy of introduction, stimulate pains and aid greatly in dilatation.

7. Do not allow the importunities of patient or friends to cause you to interfere until you have a dilated or dilatable os, and do not try forceps on a high or unengaged head, nor on a head that is still posterior or even in transverse, unless forced to do so in the interest of mother or child.

8. Do not resort to forceps until you have made an honest effort at manual rotation.

9. Do not forget that strict asepsis is just as important here as in any surgical operation, and govern yourself accordingly.

10. Finally, do not act hastily in these cases, for "time accomplishes wonders." So wait, and again I say, wait. Let watchful waiting and conservation of strength and nerve force be the watch-words in the management of these cases.

MANAGEMENT OF THE NERVOUS CHILD*

BRANCH CRAIGE, M. D., El Paso, Texas.

There are two classes of nervous children—those suffering with some distinct nervous disease, and those in whom nervousness is due to heredity or environment. It is the latter class whom I wish to discuss in this paper.

Due to the physiological and anatomical peculiarities of early life, the infantile nervous system is very unstable and very easily upset by any exciting cause. The central nervous system of the infant is not only morphologically but functionally an inadequate organ, which is physiologically active only in part. Considerable areas of the brain, especially the cerebrum, receive their myelin at variable periods of infancy. This absence of myelin limits the conductive power of the nerve fibers. Because of this incomplete development of the centers in the cerebral cortex, the inciting and regulating influences of the brian are very imperfect. The spinal cord is highly developed and very active. Between it and the brain there is only partial coordination. With this lack of restraint, the uninhibited reflexes run riot. The baby lives almost a spinal existence. These conditions favor the rapid development of the nervous system, without any neurotic hereditary tendencies or external stimuli. The very marked variations in the frequency and regularity of the heart's action and changeable quality of the pulse, and the frequency with which the respiration assumes an intermittent and arrhythmic type, show that there is no equilibrium between the exciting and inhibitive powers of the nerve centers at this age.

Babies show clearly marked differences from birth. The phlegmatic babies at birth cry some and soon adjust themselves to their new surroundings, and fall asleep. The babies born of neurotic parents and reared in neurotic associations show early the symptoms of an unstable nervous system, and are most likely to develop the characteristic manifestations of the neurotic infant. These babies will immediately register their protest at being removed from their warm beds into the cold world and at being placed in irritating clothing. They will wriggle and squirm and cry until their nervous systems are exhausted. This lack of sleep and constant crying render their nervous systems more and more irritable. They develop indigestion and vomiting on any food, and often convulsions and fever from any irritation. They are often precocious and require much entertaining and soon become little tyrants, ruling the household. Added to the difficulties of these infants is the presence of the neurotic parents, who often show little inclination to train them.

If colicky, they are constantly surrounded with anxious care, and soon become the sole preoccupation of their parents. In these unhappy little creatures it is hard to distinguish between colic and the outcroppings of neurotic inheritance. At any rate, they are popularly supposed to be colicky, and the effect produced upon all persons interested in them is the same in both instances. They are picked up by the father, the mother, the grandmother and nurse and carried about, jogged, cajoled, laid across shoulder and knee, patted on the back, swung up and down and to and fro, and talked to by the hour. The sense of being touched seems as early and as well developed as the sense of touch. They soon learn the feel of the human hand and become hopelessly spoiled, thus augmenting their already overtaxed nervous systems. During their placid intervals they are the amusement of their parents and the entertainment of their relatives and friends. Their respon-

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siveness is stimulated in innumerable ways so that they are made to laugh and play when they should be quiet and asleep. It cannot be too often repeated, that during the first few months of early life there is absolute need of many hours of sleep, and of much mental quiet at other times, and that all shrill and glaring impressions and all irritation of milder degree, if long continued, exhaust the brain.

The human being is the only animal not permitted the peace of infancy. All other animals at this tender formative period are allowed to remain quiet and develop unmolested. Should an elephant come along and toss you up and down and swing you to and fro when you are in great pain, hungry and weary and praying for rest, surely your already overwrought nervous system would register its mightiest protest.

Improper feeding is one of the most potent factors in the causation of nervousness in infancy and one of the most irritating factors to the infants of neurotic tendencies; so that, as in so many conditions of infancy, the diet assumes prime importance, as much in prophylaxis as in correcting disorders of the nervous system. In early life these disastrous nutritional disturbances are seen in both the artificial and breast fed babies. As I have said before, no food agrees at first with these babies. The consequence is, in the bottle fed, every known food is tried by the parents without regard to the needs of the infant; or every known milk formula is tried by some doctor. It is a great mistake to prescribe cow's milk for every baby and insist upon it, for there certainly are lots of cases in which it does not agree. Used with intelligence, and with an appreciation of their contents, of the ages and conditions for which they are suitable, proprietary foods, undoubtedly, have their value in tiding over an annoying nutritional disturbance. It is their abuse and not their use that is so disastrous.

The temperament of the breast fed babies depends almost entirely upon the health and disposition of their mothers. Women of even, quiet temperament usually make the best nursers. Women of the unstable, nervous type usually make unsatisfactory nursing mothers, especially for their first babies. These mothers are very impressionable and easily worried. The last few months of pregnancy is a burden to them. The discomfort from pressure gives rise to various symptoms. Their timidity at this time keeps them in the house and deprives them of sunshine and a proper amount of exercise. They approach confinement with fear and apprehension. They know little of what is going to happen and they worry a great deal over what might happen. Their minds, constantly on their condition, have magnified the tales related to them by other women. Their friends have told them what terrible times they had, and the women of their neighborhoods have not neglected to remind them of the convulsions Mrs. Jones had or the hemorrhage Mrs. Smith had or the dead baby Mrs. Johnson had in her awful labor. After revolving all these possibilities in her mind for nine months and then going through an exhaustive confinement herself, the young mother is in no condition to secrete the best food for her infant. As the breasts fill with milk, she becomes much concerned over what effect it is going to have on her offspring. The phlegmatic sleepy baby makes matters worse; for, at first, it is hard to get him to take the nipple at all. He falls asleep and the mother, who has been told that it is the act of nursing that makes the milk come into the breast, wonders why he does not nurse and whether she is going to have enough milk for him. The high strung neurotic infant, born with an irritable nervous system, aggravated by his surroundings, hungry and colicky, brought to his mother, restless, screaming, wriggling blindly, sputtering, grasping at the nipple and turning his head away, makes the mother wonder whether her milk is

going to agree. It is really not right to expect it to agree. In adults we advise a nervous, tired dyspeptic to rest before eating, but we do not practice this with the exhausted infant.

The secretion of milk is closely dependent upon the nervous system and the daily life of the mother. Worry, distress, anxiety, sorrow, loss of sleep and rest decrease the flow of milk and make a high percentage of protein. Excess of protein in the milk is the greatest offender in the diet. It is relatively greater in amount before the milk equilibrium is established, and is increased by any unsettled condition of the mother. It is highly desirable to reduce this protein, but it is seldom possible to modify a nervous woman's temperament and it is quite frequently very difficult to remove causes of worry and anxiety. The scanty breast milk also seems often to act as an irritant, sometimes making the baby sick, and often making him cry with colic, flatulence and increased peristalsis; and occasionally starting greenness and looseness of stools. In cases where the mother leads a sedentary life and eats a large quantity of rich food, there is often a bounteous supply of rich milk which comes easily and which the infant gulps down in haste, only to repent at leisure. The result in either case is a dyspeptic baby, whose fretfulness often makes its mother uncontrollably nervous. A vicious circle is thus formed which makes a situation very difficult to handle. The tired, discouraged mother, in desperation makes up her mind that her milk does not agree with her infant and insists that something be done.

Since a baby has a greater tolerance for breast milk than for any other food, it would seem at first glance that the error in diet could be easily detected and easily remedied, but in all these cases the patience and ingenuity of the mother, nurse and doctor is taxed to the utmost to induce the colicky belligerent to agree to an armistice. When this can be done often the victory is won, for the mother, not hearing her baby cry and fret, believes all is going well and begins to stop worrying and gets some sleep and rest, and with the consequent better milk for a diet, the baby ceases to have dyspepsia. Sometimes with a thorough understanding of the needs of the case, if the baby is given a complementary feeding, he is satisfied and shows a marked improvement.

For the first few days after delivery the mother must have the greatest care and consideration; she must have the proper amount of sleep and be undisturbed by the baby except at feeding time. When she is up and around the house the daily cares must be made as light as possible. She must have recreations and respite from the constant care of the house and infant. There is nothing more tiring than looking after a baby all day and sleeping with one eye open at night to see that the little fellow keeps covered. If sleep is lost at night, it should be made up during the day.

The mother's diet should be general and nourishing, and contain a sufficient amount of vitamines.

The infant, removed from the warmth of its mother's body, should be kept warm—cold irritates the nervous system more than anything else. Regularity in all things pertaining to the infant is most important. Food must be given at regular intervals and not too often; every three or four hours is the best. Sleep must be at certain times each day and of definite duration. The infant must be left alone and permitted to grow up in quiet and amid peaceful surroundings and with freedom from undue excitement caused by the active admiration of so called friends and overfond parents.

All time must not be spent in trying to make his environment more comfortable. Something must be suggested by the physician to quiet these unfortunate little fellows. Too often our first impulse is to let them cry it out. Every time I give these in-

structions I wonder whether I understand the individual child. Certainly in many cases there is no surer way to keep up the restlessness and crying than to let the screaming, struggling, wriggling infant cry to the point of exhaustion; and in many cases there is no surer way to spoil the infant than to pet him with too many attentions. Very often if the baby is placed comfortably in a quiet, darkened room and the mother's hand is laid gently on the stormy little body and a low lullaby sung to him, sleep is instantly induced. If food is to agree with the baby, whether it be breast milk or artificial feeding, he must be quiet and at peace even if this state of mind must be accomplished by means of bromides.

There is more mental development in the third year of life than at any other age and children at this formative period are very impressionable. Their bodies and minds are formed by the associations in which they grow, and their conduct is directed to a great extent by suggestions derived from grown-ups around them. Their good temper and happiness depend upon their environment; constant crying, fretfulness, broken sleep, refusal of food, extreme timidity and thinness often indicate that something in this direction is at fault. Different temperaments of parents are reflected in their children. The nervous influences of home associations have a most profound effect upon them. Nervous, apprehensive parents who are not careful to hide from these children their anxiety and distress, rear them in an atmosphere of doubt and anxiety and force upon them a reputation for nervousness which they readily accept and constantly act upon. They are never out from under the solicitous eye of their parents long enough to develop their own intuition. Everything is planned for them. Their play is supervised and often they are made playthings. If children are permitted to play alone or together there is seldom nervous exhaustion, but adults set too stiff a pace for these youngsters and excessive stimulation makes for mental irritability and physical weakness. They are pampered and humored and no effort is made to control them.

The predominant characteristic in all these children who are directed and urged too much is negativism. They are habitual objectors. They learn their first lesson early. Even before the baby reaches the age of understanding, the mother playfully shakes her reproving finger at the little fellow and says, "No, No." Grown people must remember that the child's vocabulary is theirs and not its own. Very often the first word that an infant learns to say is, "No," and, unfortunately, words of reproof, negation and repression are among the first of its vocabulary. Some babies hear so much chiding that it is not unusual to see them joyously scold themselves. They are forbidden to do this or that, coaxed, cajoled and threatened long before they know the meaning of the words, but not before they understand the tone uttered. Nothing pleases them more than to see the mother repeat, time and again, the reproof forbidding them.

This negativism is seen in everything these children do, but their chief opportunity is in their refusal of food and sleep. They will clench their teeth, shake their heads and refuse to eat, or they will use every means to keep from being undressed, and if forced to bed, will wind up the day in a tyranny of tears. Constipation and enuresis are daily outcroppings of negativism. Excessive concentration of the mother's thoughts on these daily functions communicates itself to these children and they instinctively refuse to have a movement of bowels or to micturate when requested. Instead they will sit on the commode as long as their mothers wish them to, and soil their pants as soon as buttoned up. Refusal to go to stool, of food and of sleep, all become frequent or habitual as the child's conduct distresses the parent and as the child appreciates the reaction which he creates. Restraining, reproving, forbidding and threaten-

ing these children make them take delight in doing what they conceive to be wrong. No entreaty, no threat and no force will succeed. Negativism is due to mental unrest, and permanent cure will only be effected when faults of environment have been overcome, when the cause of nervous unrest has been removed, and when the child's mind is at peace.

These children suffer with one or more of a varied number of symptoms that differ widely with the individual. An abnormal degree of excitability is common in almost all of these children. Timidity and sensitiveness are striking characteristics. Disorders of sleep are very frequently seen, either in insomnia, restlessness, or night terrors. They usually sleep so lightly that they are awakened by the slightest noise or turning on the light. Fear is a most prominent symptom. They are afraid of everything strange with which they come in contact. We have all gone through the experience of trying to examine one of these panicky children with a stethoscope. Fractiousness, naughtiness and ungovernable fits of temper are symptoms hard to control. They are easily fatigued, mentally and physically and have palpitation of the heart and rapid breathing upon the slightest exertion. Functional heart murmurs are not uncommon. Some are very impressionable and indulge in all sorts of nervous habits, such as cough, sudden twitch of facial muscles, shrug of shoulder, grimaces, etc. Speech shows evidences of nervous instability in stuttering, which is nothing more than failure of speech to coordinate and keep pace with the child's haste to express ideas.

In older children, influences of school life, rushing from a hurried or unfinished breakfast to keep from being tardy, long hours in poorly ventilated rooms, neglect of personal hygiene, undue mental labor, worry about getting up lessons, imperfect recitations, strain of keeping towards the head of the class or fear of failing on examinations, create excessive nervous activity which, if not carefully guarded by parents, constitute a potent factor in the production of functional diseases of the nervous system.

Improper food, irregular meals and eating between meals, contribute to nervousness in childhood. Delicately built and anemic children, easily tired out mentally and physically, suffer readily from digestive disturbances. The excitable, active child, who is in a hurry to get out to play, or who does not have a healthy lunch, or who becomes tired trying to keep up with the older, stronger playmates, never does well. Soda pops, all day suckers, ice cream, hard raw apples, and early fruits play an important part.

Suggestibility is, in a large measure, responsible for the capricious appetites of these youngsters. Parents all too often say, in the presence of their children, that Mary or John does not like cereals or will not eat vegetables. They like to be the center of the picture and will go hungry in order to appear peculiar or different from other children. It is unwise to attempt force; excessive coaxing is equally unwise, for it only concentrates the child's mind on the matter. The child should be brought to the table rested and made to sit until the meal is finished. If he does not eat what is prepared for him he should not have anything until the next meal. It is certainly very wrong to supply articles of diet especially prepared for him according to his fancy. Nervous unrest produces prolonged dyspepsia which cannot be stopped by change in diet, but only by quieting the nervous system.

Masturbation is one of the most serious manifestations of nervous instability. The frequency of this neurotic habit is amazing. In most cases it is overlooked and the seriousness of it underestimated. It is true that pseudo-masturbation is practiced by most infants and when done in moderation is physiologic, but very often children of marked neurotic dispositions so persist in this self-gratification that it becomes a matter of se-

rious import. In its physiological limits it is not associated with psychic sexual impulses, but only with one or more of the erogenous zones. It is interesting to watch how various abnormal habits in these infants in later months become sexual. The act of nursing in normal infants, aside from satisfying hunger, is found to be pleasurable and soothing. In infants who have congenitally weak nervous systems, voluptuous consolation or even excitement is brought about by sucking movements with the lips, sucking the finger, the arm, the bedclothes or part of the clothing; or, as is so often seen, a diaper or small blanket or piece of cloth, or by rhythmic rubbing or pulling at lobe of ear, rubbing or picking the nose, scratching the scalp or other similar manipulations. Such habits often persist for years and probably, in a great many cases, lead to masturbation at a time when uncleanliness, adherent prepuce, irritation from diapers, tight drawers, chafing or cleansing, focus the attention of the child on the genitals, where he soon finds pleasurable sensibility and learns to repeat the experience with onanism.

In normal cases there is soon developed in the child a physiologic inhibition and the habit is of short duration, but in some this barrier is never developed and onanism becomes excessive and dangerous. The practice is more frequent in girls than in boys. In all these children, except those in whom there is no psychic barrier, there is a continual mental conflict which may lay the foundation of later neuroses. The consciousness of the concealment of wrong doing is harmful to the child's morale. The general health is depressed by repeated exhaustions. Masturbation exaggerates all the conditions of the neurotic child that induce him to seek solace in this perversion and adds to its already long train of nervous symptoms, mental hebetude, apathy and an uncertain and capricious disposition which make him anti-social and secretive. It is most essential that the condition be recognized early, for it is then that the habit can best be broken and the development of a sexual hypochrondriac prevented.

Onanism is a difficult condition to combat. All sources of local irritation should be removed and the child's health improved. Mechanical appliances in my practice have been futile. They seem only to focus his attention on the very thing you are trying to prevent. I have circumcised a number of boys with success; recently I circumcised two girls—one seven, the other nine—who seemed hopelessly absorbed in self abuse. Both were cured, and in a very short time one gained six pounds, the other eight.

Parents and doctors have a responsibility with these unhappy nervous children which cannot be shirked. We must study ourselves to see where the fault lies in their management, and we must study the child to find out how we can help him to make peace with himself and with the world. Medicine will do little good. We must not allow ourselves to grow impatient. It is sympathy and understanding that is the greatest factor in the regeneration of these children. We must judge them by children's standards and not by grownup standards. Too often our first impulse is to humor the spoiled child or to give him a spanking. Neither plan will succeed. The fault is not with the child, for he is the innocent victim of the way he is brought up.

Do something to prevent concentration of the child's mind on his difficulty. Talking in his presence about his deficiencies or his peculiarities must cease. Let him become absorbed in some interesting occupation. Give him self confidence instead of diffidence and self consciousness, but avoid efforts to make him precocious by teaching him things ahead of his age. Often because of irregularities in development, special aptitudes become manifest at unusually early age. It is most undesirable to further develop and cultivate this precocity, for it is an abnormal condition in the

human infant, which, if encouraged, may result in actual disease and permanent mental impairment.

Frequently the spirit of the timid child is broken for a long time by some slight reproof. Repression and thwarting the child in his legitimate purposes, coaxing and entreaty must stop. Parents must not spoil or indulge the child, but guide him with a firm hand. When authority is exercised too persistently and too remorselessly, the child so dominated loses independence. Snatching things away from children is bad. Do not threaten them with the doctor or police, nor deceive them in an effort to force obedience. The child's daily life should be arranged so that all mental exertion and irritation be reduced to a minimum. If the child's school work interferes with his appetite and digestion, or prevents him from getting the necessary amount of sleep and rest, he should be taken out of school for a few months or a year, and allowed to play in God's out-of-doors. All undue and unnatural excitement, especially theaters, children's parties and moving picture shows should be avoided.

Train the child to instant and unquestioning obedience; then he will eat what he is expected to eat and sleep soundly when he is put to bed, if only the appropriate suggestions and not the contrary are made to him. The outcome depends entirely upon the care and exactness with which treatment is carried out, and especially with how well parents can be instructed in the proper management of the child.

CHOLERA INFANTUM*

R. J. BOATMAN, M. D., Carlsbad, N. M.

Mr. President and Gentlemen: I deem it a waste of your time to discuss the causes, pathological anatomy and symptoms of cholera infantum, as you well know what our recent text-books have to say on this subject. Therefore, I shall call your attention to what I have gathered in my experience in the treatment of this disease, and shall mention such pathology as will be necessary to explain my ideas.

Omitting ordinary summer complaint, so called, caused from teething, excessive heat, indigestion, overfeeding or improper diet, which if maltreated or neglected may lead to cholera infantum, I will proceed at once to give my method of treatment for a well developed case of cholera infantum.

The irritated and inflamed condition of the intestines and sometimes the stomach, caused by the acid fermenting foodstuffs, impair or destroy temporarily the synthetizing function of the villi and denude the mucous membrane of the intestine, leaving a suitable focus for absorption of the toxins, acid ferments or partly unchanged foodstuffs, with consequent overburdening of the liver's detoxication function and allow the escape through it of foreign proteins and sugars, resulting in the so-called autointoxication. Under such circumstances, my first effort, if the stomach has not been thoroughly emptied by excessive vomiting, is to stop all food intake, and administer a dose of oil, and, after its action, wash out the intestines with a salt solution of one teaspoonful of sodium chloride to one pint of water; usually a half gallon of this solution is required to thoroughly flush out the bowels. The technic of the flushing of the bowels is very important. It consists in placing the infant in its mother's lap with its head resting on her left arm, and the right foot of the mother resting on the front round of the chair, and her left foot on the floor. Now with the infant's hips elevated, its head slightly downward, and its feet held upward and forward by an assistant, introduce a No. 12 soft elastic catheter, previously anointed, until it meets

(*Read before the Eddy County Medical Society, September 25, 1924.)

an obstruction, indicating that you have reached the sigmoid flexure of the colon. Now with the catheter between the end of the thumb and index finger of the left hand well pressed up against the anus, to prevent the escape of water, allow a little of the solution to escape into the bowel until the bowel is sufficiently dilated to allow the catheter to pass without any force. After the catheter has passed the flexure, push it onward gently while the solution is flowing, until its full length has been reached, then allow the solution to flow until the half gallon has passed. At the same time the solution is flowing from the syringe, remove the pressure at the anus and allow the solution to escape as fast as it is introduced into the bowel. The first water that escapes from the bowel may contain mucus and some small particles of undigested food, and in some cases small shreds of epithelium or mucous membrane, after which the water will pass perfectly clear. If the technic is not ocrrectly done, the flushing will be worse than useless.

Now two things must be brought about before nourishment can be reestablished, namely, the arrest of irritation of the stomach, and of the excessive diarrhea, which usually requires 24 to 36 hours. There being an abundance of water drawn from the tissues by increased bowel movements and, along with it, the alkaline salts, which is Nature's way of neutralizing intestinal acidity, there is an increased toxemia through concentrated blood and impeded kidney action, almost invariably leading to acidosis, which must be treated if it has occurred or prevented if it has not. This is accomplished by administering the following: Chlorinated lime, one grain; bicarbonate of soda, four grains; sugar of milk, five grains, diluted every four hours, until urine becomes slightly alkaline, which can be determined by two strips of litmus paper, one red and one blue, placed between two layers of absorbent cotton and placed over the meatus urinarius, held in place by the diaper, and watched each time the diaper is changed. In addition to the alkaline treatment, I prescribe the following mixture, three grains of which contains: Zinc sulphocarbolate, 1/10 grain; salol, 1/5 grain; bismuth salicylate, ¼ grain; bismuth subgallate, ¼ grain; pure pepsin, ½ grain; tinct. opium camph., 5 minims; calomel, 1/50 grain. I give three grains of this powder every two hours. For the purpose for which this powder is used, it is almost a specific. The watery discharges usually cease after the fourth or sixth dose. Now about this time, 24 hours have passed and the stomach had its required rest, and the toxemia is overcome, as shown by clearer mentality and better feelings on the part of the little patient; then food must be administered of sufficient caloric value to maintain its strength. If the mother is a healthy woman, put the baby back to her breast; if not, procure, if possible, a wet nurse; but if we fail in this, we will have to resort to predigested infant food, which is not very satisfactory.

Now, gentlemen, we may not have as favorable a case as I have described in this paper, and, on our arrival, we will find the infant in a semi-comatose condition, the mucous membrane of the lips and tongue as red as a cherry, rolling its head back and forth, tossing about first one hand and then the other, with a very rapid and feeble pulse. We know by these symptoms that our patient is rapidly undergoing acidosis, and if something is not done instanter, within a few hours we will have to sign a death certificate. Under such circumstances I flush the bowels as above stated and push the alkaline treatment, and, in addition to this, I administer four ounces of normal salt solution by hypodermoclysis every six hours until there is a change in the character of the pulse and the urine becoming alkaline, then proceed as in the first case described.

In conclusion, suffice it to say that there are many cases of cholera in-

fantum convalescing from the acidosis followed by a protracted intestinal indigestion, necessitating irrigation of the colon, morning and evening for several days. In such cases I give peptopancreatine compound with charcoal, five grains, after taking nourishment, every three hours. This preparation contains the active digestive agents, pepsin, pancreatine, diastase, ptyalin, lactic and hydrochloric acid with charcoal, and I get good results. It is impossible to outline every detail in the treatment of any disease. Each case is a unit unto itself, and complications that may arise should be met on general principles.

MY EXPERIENCE WITH TARANTULA BITES*

M. B. CULPEPPER, M. D., Carlsbad, N. M.

Case 1. In June, 1922, I was called to see a man, age about forty, a laborer, who gave the following history: Upon putting on his shoes on the morning of this day he noticed some foreign substance in one of his shoes that caused a slight pricking about his toes, but it was so slight that he did not remove the shoe until noon, at which time he removed the shoe to find a large tarantula clinging to the space between his big toe and second toe. There was no pain of note, so he brushed off the spider, put on his shoe and continued his work until about 3:30 p. m., when he noticed a tingling pain ascending the leg; this soon reached his body and descended the other leg as well as ascending his body and, in an hour longer, had reached the region of his heart and soon completely covered the entire body, by which time he had become very uncomfortable. He was, at this time, about forty miles from town and before reaching town he was suffering severely. I saw him about 6 p. m. and noted from his expression and symptoms that he must be in very great pain. After getting the above history I examined the point where the spider had bitten and noted no swelling, only a flea-bitten appearance at the point of the bite. I decided he must be frightened, although he persisted that he was not frightened, but that he was suffering the most excruciating pains; and I must say that he looked it. He stated that his bones were ready to burst all over his body, that his heart was cramping and that he could hardly breathe. He could not be still, but kept up a constant tossing on the bed, saying that I would have to give him some ease or he would die.

Physical signs revealed very little, no temperature, pulse slightly disturbed, pupils unchanged, no swelling about the point of bite, but it was not hard to note extreme agony by facial expressions and by the irregular type of breathing.

Deciding that a certain amount of his symptoms must be fright, I gave him one-eighth grain morphine by hypo. and assured him that he would be relieved in an hour. After about an hour I returned to find him complaining even more. I gave him morphine, one-fourth grain, and atrophine, 1/150 grain, and assured him again that would quiet him, but on returning in another hour I found no change. I repeated the last dose of morphine and, after watching him for thirty minutes, I could note no change except a drooping of the eyelids and slowing of respiration, but he still complained of the pains as before. I ordered bromochloral compound in teaspoonful doses every two hours, which gave him some ease. Not wishing to continue the last named drug for too long a period at such intervals, I left orders to give it only often enough to quiet him enough so he could stand it. But I found that I had to keep him heavily saturated for four or five days, after which time I could begin to leave it off.

He hardly slept or ate for ten days, but after this time he gradually came out of his frenzy, but was not able to return to work for thirty days. There was never any more sign of swelling or soreness about the point of puncture than when I first saw him. He looked like a man who had had a spell of typhoid fever after his recovery, notwithstanding the fact that he had never had fever nor any other symptoms except pains, restlessness and sleeplessness.

Case No. 2 was a young Mexican laborer whom I was called to see about two months later. While asleep on the ground at night, on turning his hand fell over on some object which he described as being soft and that it pricked him on the hand. He thought it might be rat and returned to sleep. Some hours afterward he was awakened with severe pains, which grew rapidly worse. I was called to see him about sunrise and found him suffering about the same as Case No. 1, only a flea-bitten spot where he claimed the bite had been inflicted, no swelling nor any other evidence except pain. I ordered him to the hospital, where I gave morphine as before, without any relief, but after putting him on the bromochloral compound managed him about as the former case. I kept him in the hospital one week and allowed him to return to his home, but it was still several days before he was able to return to his work. Diagnosis made on its likeness to Case No. 1, as he had not seen the spider.

Case No. 3 was a young man, merchant by occupation, who, after a hard day's work in his hardware store, went with his wife to the

(*Read before the Eddy County Medical Society, Carlsbad, New Mexico, Sept. 25, 1924.)

picture show. He did not feel very comfortable while at the show and upon arriving at his home he was seized with pains over his body and complained that his bones would burst, his heart cramped and respirations were very much interfered with. I saw him about eleven o'clock that night. He thought his trouble was caused by acute indigestion, as he had eaten a sandwich late that evening. I gave him an emetic, emptied his stomach, gave him an enema with good results, but had no relief from pains. I gave one-fourth grain morphine by hypo. and assured him that he would get relief. I was called to see him about five o'clock next morning and was told that he had not had any relief. It then occurred to me that his symptoms were the same as the Cases Nos. 1 and 2, but he denied at first that he could have been bitten. I could account for his symptoms in no other way and set out to find the tarantula, which was not hard to do, for among his wares where he had been at work was a fine large specimen. After questioning the man more closely he recollected that something had either stung or bitten him while at work and that he brushed it off and did not see it. I found the same evidence at the point where he had felt the sting that I had noted in the two former cases, never any swelling or redness, nor any marked pain at the point attacked. My treatment in this case was, after this, the same as before, and the patient was able to return to his work in about three weeks.

Case No. 4. A young farmer in May, 1924, while at his work, felt some object creep in up his pants-leg above his knee. In his efforts to extract it he felt it sting him a couple of times, but did not experience much pain, but came to my office within a couple of hours and explained that a large tarantula had bitten him and wanted to know if it would be necessary to do anything for it. Whereupon I immediately injected underneath the bites one-half percent solution of permanganate of potash and kept him under observation for twenty-four hours, by which time he had manifested very slight symptoms akin to cases previously reported. He was not detained from his work but for two or three days.

I find very little in my text books pertaining to the tarantula poisoning. Some of them seem to doubt that they have any poison and others claim they are of little consequence. I cannot remember of having seen anything on the subject in any medical journal and it is only after some persuasion that I have consented to write on this subject, hoping it might arouse some interest among the profession, especially of the Southwest, where the tarantula is most common, and that it might bring out the experience of someone else who, like myself, was dilatory in expressing themselves for the same reason that I have been and who might have used a more successful treatment than I have.

One thing strange to me is why it takes so long after the bite before the poison seems to reach the blood and cause the general or constitutional symptoms (the period in my cases has been from six to twelve hours) and that the primary symptoms are negligible. Another strange thing is why morphine does not relieve pain even in heavy doses and why the poisoning becomes so chronic.

In the Reference Handbook of the Medical Science we find more of the history of the tarantula than in any other work to my knowledge. It says that the Tarantula Fasciventris is the most famed and defamed of the spider family, which has been reputed to cause many peculiar symptoms, such as the tarantula dance, some sing, some cry and others laugh, and some claim that there is no human disease which cannot be produced by the bite. Another species known as the Malmignatte is found in Italy, Corsica and the Antilles, also in Spain, where it appeared in 1833 in such numbers and was so feared for its poison bite that the farmers of that region feared to leave their houses in harvest time and many people were dangerously bitten. It also states that the poisonous effect of spider bites varies at different seasons of the year.

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THE SOUTHWEST MEETING NEXT MONTH

Unless all signs fail, the Southwest Meeting in Phoenix, November 6th, 7th and 8th will be a notable one. Since the Association met here in 1921, many changes have taken place which will enable the medical profession of Maricopa County to offer a more elaborate clinical program and a more satisfactory entertainment of the Association.

SCIENTIFIC PROGRAM

The General Program Committee is composed of Dr. J. J. McLoone (Phoenix), Chairman; Dr. L. B. Cohenour (Albuquerque); Dr. Willis W. Waite (El Paso); Dr. W. Warner Watkins (Phoenix), ex-officio; Dr. Charles S. Vivian (Phoenix), ex-officio.

One of the especially interesting features of the program will be the symposium on tuberculosis, with papers sufficient to fill an entire afternoon. They include the following:

Dr. John W. Flinn of Prescott, Ariz., "Artificial Pneumothorax."

Dr. S. H. Watson, Tucson, Ariz., "Heliotherapy."

Dr. W. K. Gekler, Albuquerque, N. M., "Secondary Injections in Pulmonary Tuberculosis."

Dr. Frank J. Nordby, Fort Bayard, N. M., subject not yet announced.

Dr. O. Egbert, El Paso, Tex., "Mechanical Problems in Advanced Pulmonary Tuberculosis."

Dr. H. H. Stark, El Paso, Tex., "Tuberculosis of the Eye in its Relation to General Medicine."

Dr. S. Schuster, El Paso, Tex., "Nasal Tuberculosis."

Dr. K. D. Lynch, El Paso, Tex., "Tuberculosis of the Kidney."

Another feature of the meeting, which has heretofore been lacking in the Southwest meetings, will be the prominence of the industrial surgeons of the southwest, especially of Arizona. There will be several papers bearing more or less directly on the management of industrial cases. This class of papers include the following:

Dr. W. L. Brown, El Paso, Chief Surgeon of the El Paso & Southwestern Railroad, will speak on "The Operative Treatment of Fractures", using lantern slides.

Dr. A. C. Carlson, Chief Surgeon, and Dr. C. Hedberg, Assistant, of the United Verde Hospital, Jerome, Ariz., will write on "Fractures of the Long Bones."

Dr. W. A. Holt, Chief Surgeon of the Old Dominion Hospital, Globe, Ariz., will write on "Injuries to the Head."

Dr. John E. Bacon, Miami, Ariz., Chief Surgeon of the Miami-Inspira-

tion Hospital, will write on "Distinctive Features of Industrial Practice as Compared With General Practice."

Dr. George A. Bridge, Bisbee, Ariz., Chief Surgeon of the Copper Queen Hospital, will write on "The Industrial Malingerer."

Dr. R. H. Thigpen, Jerome, Ariz., Chief Surgeon of the United Verde Extension Hospital, will write on "The Medical Examination in Relation to Industrial Risks."

Dr. Frank T. Hogeland, Chief Surgeon of the Greene-Cananea Consolidated Hospital, at Cananea, Mexico, will open the subject of "Traumatic Hernia" with a paper, following which there will be presented the report of a special committee appointed by Dr. VanAtta to draft recommendations relative to what shall be considered traumatic hernia. The chairman of this committee is Dr. C. R. Swackhamer of Superior; the other members of the committee are Dr. F. C. Diver of Dawson, N. M.; Dr. George A. Bridge, Bisbee, Ariz.; Dr. R. L. Ramey, El Paso, Tex.; Dr. F. T. Hogeland, Cananea, Mexico.

Among the papers of general interest, there will be several very practical papers on subjects which are pertinent. Among them will be the following:

Dr. M. K. Wylder, Albuquerque, "A Discussion of Enuresis."

Dr. G. Werley, El Paso, "Cardiac Infarcts."

Dr. Paul Gallagher, El Paso, "Dye Therapy."

Dr. P. Ramos Casellas, El Paso, "X-Ray Study of Bone Tumors."

Dr. F. D. Garrett, El Paso, "Some Obstinate Cases of Chronic Diarrhea Due to Infection of the Duodenum by Giardia Intestinalis."

No special effort has been made to secure outside papers for this meeting, as we have followed the policy of favoring our own members. However, opportunity presented to secure three addresses from visitors, and they will be given place on the program. Dr. W. D. Sansum, Director of the Department of Metabolism of the Santa Barbara Cottage Hospital, will speak on "The Causes and Treatment of the Various Known Forms of Acidosis." He will illustrate this with a chalk talk and will demonstrate a simple method of determining the hydrogen-ion concentration of the urine.

Dr. C. C. McLane of Chicago is expected to present a paper on "Indications and Contraindications for Cystoscopy."

Dr. Robert V. Day of Los Angeles is expected to present a paper on "Urologic Problems of the General Practitioner."

Taking part in the clinical program will be Dr. Nelson W. Janney of Los Angeles, who will hold clinics on cases of perverted metabolism.

What is expected to be a pleasing feature of this meeting will be the use of a Trans-Lux Daylight screen for the lantern slides. By means of this, the lantern slides can be beautifully shown in an artificially lighted room, or a room with diffused daylight.

CLINICAL PROGRAM

The Maricopa County Medical Society has taken charge of the clinical program. The committee in charge of the clinic arrangements are Drs. H. P. Mills (chairman), H. R. Carson, H. B. Gudgel, Charles S. Vivian (ex-officio). Both the Sisters' Hospital and the Deaconess Hospital have turned over to this committee the entire disposal of their operating rooms for the three days of the meetings, and all clinics will be arranged through this committee. The medical clinics will also be arranged at the two hospitals mentioned, rooms being set aside for this by the hospital, and the use of the clinical laboratory and the x-ray department of each institution being placed at the disposal of the committee also. The facilities of the hospitals mentioned will enable all surgeons, internists or specialists who wish to hold clinics or demonstrations to be accommodated. Elsewhere in this issue of SOUTHWESTERN MEDICINE will be found a brief summary of the facilities at these two general hospitals and several of the special institutions in Phoenix.

St. Joseph's Hospital

PHOENIX - ARIZONA

Fulfills all the requirements of a Class A hospital

Staff:—Physicians of Maricopa County belong to the "open staff"; other physicians may send or bring patients to the hospital, so long as the staff rules are adhered to.

Staff Meetings:—Are held on the third Thursday of each month from October to May. At these meetings, the clinical work of the hospital is discussed and means for improving the general service suggested.

Records:—The clinical records are compiled and filed in accordance with the requirements for Class A hospitals.

Clinical Laboratory:—Trained technicians work under the direction of a medical pathologist; all routine and special examinations required by modern clinical practice are promptly performed.

X-Ray Laboratory:—Every facility for x-ray diagnosis and high voltage x-ray therapy, this department being in charge of a competent roentgenologist.

With a specially trained dietician working in conjunction with the clinical laboratory, this hospital invites the reference of cases for metabolic studies, particularly diabetic patients requiring the determination of their carbohydrate tolerance and insulin requirements.

Corner of Polk and Fourth Streets

(On Indian School Car Line)

Obviously, a complete program of the surgical clinics cannot be given at this time, as the nature of these and the participation of some of the surgeons will depend upon conditions existing when the time of the meeting arrives. So far as it has been arranged at this time—a month before the meeting—the following reservations have been requested:

November 7th; St. Joseph's Hospital

Dr. E. Payne Palmer, 8 to 12 a. m., General Surgery.

Dr. W. O. Sweek, 8 to 12,, Upper Abdominal Surgery Under Local Anesthesia.

Dr. J. J. McLoone, 8 to 10, Nose and Throat Surgery.

Dr. Fred G. Holmes, 10 to 12, Chest Clinic; Pneumothorax With X-Ray Demonstrations.

Dr. Harry B. Gudgel, 8 to 10, General Medical Clinics.

November 7th; Deaconess Hospital

Dr. George Goodrich, 8 to 12; General Surgery.

Dr. Nelson W. Janney of Los Angeles, 10 to 12, Endocrine Diseases.

Dr. H. T. Bailey, 8:30 to 10, Tonsillectomies.

November 8th; St. Joseph's Hospital

Dr. Willard Smith, 8 to 12, Thyroidectomy; Graft of Thyroid Into Cretin; subtotal Hysterectomy for fibroids; Tuberculosis of Pelvis; Thoracoplasty.

Dr. A. M. Tuthill, 8 to 10, General Surgery.

Dr. Charles S. Vivian, 7:30 to 9:30, Urological Clinic With Fluoroscopic Observation of Injected Kidneys.

Dr. Frank J. Milloy, 8 to 10; Clinic on Gastric Ulcer.

Drs. Martin and Schwartz, 8 to 10, Eye Clinic.

November 8th; Deaconess Hospital

Drs. Craig, Bannister, Dysart and Eaton, 8 to 12, General Surgery and Medical Clinics.

Dr. H. L. Reese, 8 to 10, Nose and Throat.

Dr. Charles S. Vivian, 10 to 12, General Surgery.

Dr. Charles B. Palmer; 9 to 12, General Surgery.

Dr. Orville H. Brown; 10 to 12, Medical Clinic.

There will probably be several additions to this list, as some of the prominent surgeons and clinicians of Phoenix and vicinity have not yet reserved time, but will undoubtedly be holding clinics. There may be adjustments as to places of operation or the dates, when the time arrives.

LOCAL ARRANGEMENTS

The local arrangements are in charge of a committee consisting of Drs. Fred G. Holmes (chairman); W. O. Sweek, R. J. Stroud and H. T. Bailey.

The hotel headquarters will be at the Hotel Adams, and the rates at this hotel will be as follows:

Single room without bath, $2.50.
Single room with private toilet, $3.00.
Single room with bath, $3.50 and up.
For double rooms, or two in room, add $1 to each figure.

At the Hotel Jefferson the following will be the rates:

Single room, without bath, $1.50 and $2.00.
Single room with bath, $3.00 and $3.50.
Double room with bath, $4.00 to $5.00.

At the Hotel Arizona the following rates will be charged:

Single room without bath, $1.50 and up.
Single room with bath, $2.50 and up.
Double room with bath, $3.50 and up.

At the Commercial Hotel, the following rates will be charged:

Single room without bath, $1.50 to $2.00.
Single room with bath, $2.50 and $3.00.
Double room without bath, $3.00 and $3.50.
Double room with bath, $4.50 and $5.00.

The Committee on Arrangements have not yet selected the place for the scientific session meetings, several locations being under consideration. There is quite a demand for exhibit space and effort is being made to provide for this adjacent to the place of meeting.

ENTERTAINMENT

The Committee on Entertainment is composed of Drs. George Goodrich (chairman), D. F. Harbridge, S. D. Little and James E. Drane. This committee has not yet announced any of their plans, but it is sufficient to know that they are at work, and

A Simple Test of the Dietary Value of Gelatine in Milk

for the Treatment of Tuberculosis and Mal-nutrition in Infants and Adults

TAKE two 200 C. C. beakers of milk. To one add 2 grams pure, plain, granulated gelatine which has been thoroughly dissolved. Then to both beakers add 4 C. C. Hydrochloric Acid (10%).

Note the action of the acid on the plain milk. The curd formation is large and lumpy, while in the other the protective colloidal action of the gelatine not only has retarded to a great percentage this excessive curding, but the curd which does form is small and of very fine texture.

Here we have the reason why 1% of pure, plain, granulated gelatine will increase by 23% the nourishment obtainable from milk, through the prevention of indigestible curds caused by the enzyme rennin and hydrochloric acid in the gastric juice.

These findings are based upon a series of feeding tests in the research of the specific uses of edible gelatine conducted by Thomas B. Downey, Ph.D., Fellow at the Mellon Institute, University of Pittsburgh.

It is necessary to add a word of caution to use only the purest of plain, granulated gelatine, free from artificial flavoring or disturbing acids. For forty years the highest standard of gelatine purity has been represented by

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SPARKLING
GELATINE

"The Highest Quality for Health"

Free from harmful acidity, artificial coloring, and synthetic flavoring.



In addition to the family size packages of "Plain Sparkling" and "Sparkling Acidulated" (which latter contains a special envelope of lemon flavoring). Knox Sparkling Gelatine is put up in 1 and 5 pound cartons for special hospital use.

Charles B. Knox Gelatine Laboratories
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the delegates and visitors, from the time of their arrival until they depart, will know that they are in the hands of friends. This committee is authorized to select the Ladies' Auxiliary Committee, for the entertainment of visiting ladies.

The Committee on Finance, which will perform a very important piece of work, consists of Drs. R. W. Eaton (chairman), J. M. Greer and A. J. McIntyre.

Mr. J. H. McWhorter of El Paso has been engaged to report the discussions. This will be a very pleasing bit of information for those who will discuss papers, since Mr. McWhorter is well known throughout the southwest for his efficiency and accuracy in reporting medical meetings.

A very flattering interest is being shown in this forthcoming meeting by practitioners in old Mexico, and a special effort will be made to induce as many of them to attend as possible.

CLINICAL FACILITIES FOR THE SOUTHWEST MEETING

Those who attended the 1921 meeting of the Southwest Association in Phoenix will recall that the surgical facilities available there, at that meeting, were very inadequate. They will be glad to know that this condition no longer obtains and that the clinical program will be an excellent one and that the facilities available will be entirely adequate for all surgeons who wish to work and for all members and visitors.

At St. Joseph's Hospital, since 1921, the new surgical department has been constructed, on the ground floor of the east wing. This department contains three commodious operating rooms for major surgery, a similar room for work upon the head, and a smaller specialist's room. There has recently been added a urological room, which is adjacent to the x-ray department, where cystoscopic work is done and where this can be combined with x-ray work on the urinary tract. The clinical laboratory and x-ray department is adjacent to the surgical wing, and will be utilized for medical clinics. Other rooms in this wing will be set aside for medical clinics or demonstrations.

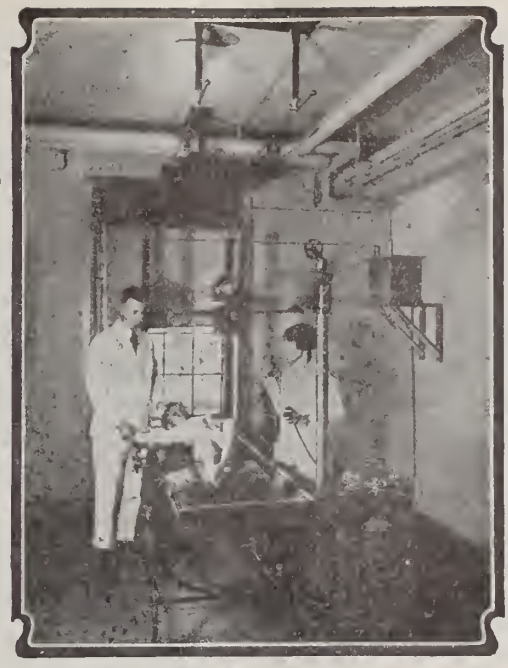
The Arizona Deaconess Hospital was opened about a year ago. It was built at a cost of about $400,000, and has 100 beds. It also has three commodious operating rooms for major surgery and one room for specialists, all on the top floor. The urologic room for cystoscopic work is on the first floor, where are located the clinical laboratory and x-ray department. Medical clinics will be held either on the first floor, or elsewhere in the hospital, as may seem most convenient.

St. Luke's Home for Tuberculosis has undergone extensive improvements since 1921. It has an entirely new administration building, with offices, examination rooms, and x-ray department. By the time of the meeting the new dining room will be completed, and this sanitarium, which now accommodates 80 patients, will take its place in the first rank of the sanatoria of the west, in equipment and buildings, just as it has for years in its medical work.

The Phoenix Sanitarium, which is just being completed, after having burned last winter, offers unique accommodations for tuberculosis cases, so far as Phoenix is concerned. The main building upstairs is designed to accommodate eight patients to whom expense is no object, there being eight suites of rooms, each with inside room, bath, toilet, and sleeping porch. Each room will be equipped with radiophone attachments connected with a central radio plant. This building also contains, downstairs, the offices, dining room and kitchen, clinical laboratory and x-ray laboratory, with operating room for minor surgery.

MARICOPA COUNTY (Arizona) MEDICAL SOCIETY

This Society held its first meeting of the season on Saturday evening, October 4th.



Victor Equipment in Shriner's Hospital for Crippled Children, Portland, Oregon

The Last Word in X-Ray Equipment

Victor X-ray apparatus meets every roentgenological and medical requirement There are comparatively simple machines of moderate price for the general practitioner, and machines for very difficult work, especially designed for the roentgenological laboratory or the hospital.

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VICTOR

The meeting was held at the Deaconess Hospital, where dinner was first served in the dining room, after which the members adjourned to the lecture hall for the discussions and scientific program.

There were about forty members and visitors present. Dr. Charles S. Vivian, president, presided, and Dr. G. B. Couch acted as secretary in the absence of Dr. Phillips.

The application of Dr. E. L. Hicks was presented by the Board of Censors, with their approval, and he was elected to membership.

Time was given Mr. Eben Lane and Mr. Frank Jefferson of the Advervising Club to explain to the Society a misunderstanding which had arisen regarding the advertising campaign which was about to be inaugurated.

Following this, Dr. F. T. Fahlen read a paper on "Heart Block", which was discussed by Drs. Burtch, Jordan and Gatterdam.

The remainder of the program was occupied by Dr. H. R. Carson in relating some of the things which he had learned during his summer's work in eastern centers of medical learning. He was still lost in Chicago at the close of the meeting, and will be allowed to resume his journey at some future gathering of the Society.

This is the first of the regular meetings, which occur on the first and third Saturday evenings of each month.

DR. E. A. GATTERDAM, member of the Veterans' Bureau Hospital at Prescott, is temporarily in charge of the work at St. Luke's Home, Phoenix, in place of DR. E. W. PHILLIPS, who is on vacation. The patients of St. Luke's were transferred from Prescott to Phoenix on October first.

YUMA COUNTY (Arizona) MEDICAL SOCIETY

This Society held a called meeting on Saturday evening, September 27th, to confer with Dr. W. Warner Watkins of Phoenix, who is the Councilor of the Middle District of the State Association. Dr. R. R. Knotts, president; Dr. E. G. Colby, acting secretary; Drs. Cain and Ketcherside were present. This was a rather informal conference devoted to a discussion of the best type of program for a society of small membership. The situation in Yuma County was found to be rather favorable for good clinical meetings. The County Hospital there has been improved and made into a modern institution, with good equipment. This was done by the county, and was then turned over to the County Medical Society, to be operated by them. Indigent patients are cared for at a rate agreed upon and the hospital is used by the members of the County Society for their private patients, the business administration being in the hands of a Board of Trustees, consisting of seven business men of Yuma County. The County Society, therefore, can use the clinical material of the hospital for study, since they, for all practical purposes, constitute the staff of the hospital. The plan of work for the winter will probably be based upon some such foundation, which offers great possibilities for clinical study.

PERSONALS

DR. H. K. BEAUCHAMP of Phoenix recently returned from a five weeks' postgraduate course in New York, devoted chiefly to the New York Postgraduate School. He visited other medical centers and clinics en route.

DR. ANCIL MARTIN of Phoenix is expected home about the middle of October from his European tour.

DR. WILLARD SMITH of Phoenix left early in September for a tour of the middle western and eastern medical centers, terminating with the College of Surgeons and Clinical Congress on Surgery in New York the middle of October.

DR. E. PAYNE PALMER of Phoenix will be among the Arizona members of the College of Surgeons who will be in attendance at the New York convocation and the Congress on Surgery the middle of October. He will return about November first.

DR. W. O. SWEEK of Phoenix returned about the middle of September from Portland and northwestern points, where he had spent the summer.

DR. E. J. GUNGLE, formerly of Tucson, has located at Gilbert, where he has taken over the practice of Dr. Thompson. Dr. Gungle, before moving to Tucson, was located in Casa Grande, and while there was a frequent visitor in Phoenix. He will be welcome in our medical circles again.

DR. WM. S. NEEDHAM, formerly located at Tremont, Ill., has located in Phoenix, where he will be associated with the Southwest Clinic. Dr. Needham is a graduate of the University of Louisville Medical Department, served his interneship in Chicago, and has been located at Tremont for the past five years.

DR. ROBERT W. CRAIG of Phoenix has returned, with Mrs. Craig, from a summer spent touring in Europe. Dr. Craig has resumed his practice in Phoenix.

DR. R. D. KENNEDY of Globe will be in attendance at the College of Surgeons' meeting in New York, this month. He expects to return in time for the Southwest meeting in November.

DR. JOHN G. McPHAIL of Chelsea, Mass., is in Phoenix for the winter.

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Malnutrition, Marasmus, Infantile Atrophy, Athrepsia

Mellin's Food	**8 level tablespoonfuls**
Skimmed Milk (1% fat)	**9 fluidounces**
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The suggested modification furnishes nutrition in keeping with the character and amount of food element best adapted to the particular demands of infants in an extreme state of emaciation and serves well as a starting point in attempting to meet the nutritive requirements of these undernourished babies.

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NEWS FROM PECOS VALLEY, N. M.

DR. W. E. GOODSELL is in the hospital, quite sick, but at this writing is somewhat improved.

THE PECOS VALLEY (DISTRICT) MEDICAL ASSOCIATION will hold its annual meeting in Clovis, N. M., on October 30th.

THE CHAVES COUNTY MEDICAL SOCIETY is not getting down to business as it should after the summer vacation; some of the members seem rather slow about getting into the harness again.

ST. MARY'S HOSPITAL STAFF have about forty percent of the members absent from the regular meetings about sixty percent of the time. This should not be. If the Staff is to derive any benefit from the meetings and the discussion of cases, attendance is necessary. C. M. YATER,

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THE EDDY COUNTY (N. M.) MEDICAL SOCIETY

Artesia, N. M., Sept. 25, 1924.

The Eddy County Medical Society met in regular session at Carlsbad on September 25th. Present; President Doepp, Drs. Boatman, Black, Culpepper, Parks, Pate, Puckett, Stroup and Russell. Visitors present were Dr. Rock of South Dakota, Major Russell of the U. S. P. H. S., and Dr. Miller of the U. S. Biological Survey, the last two mentioned being in Carlsbad investigating the situation with reference to the supposed epidemic of anthrax among the jackrabbits of the Lower Valley.

The program for the meeting was as follows:

"Cholera Infantum", by Dr. R. J. Boatman, Carlsbad.

"Tarantula Bites", by Dr. M. B. Culpepper, Carlsbad.

"Phimosis in Infant Males," Dr. O. E. Puckett, Hope.

"Postoperative Ileus," Dr. William F. Glasier, Carlsbad.

"The Anthrax Epidemic", Dr. Parks.

Dr. Boatman's paper dealt with the treatment of cholera infantum per se and emphasized the difference between that trouble and ordinary intestinal disturbances of the infant. The discussion was participated in by Drs. Culpepper and Doepp.

Dr. Culpepper's paper on "Tarantula Bites" was a compilation of cases he has seen, giving in detail the symptoms of which his patients complained. The discussion by Drs. Stroup, Boatman and Pate brought out the apparent rarity of this accident in this country and showed no definite parallel of symptoms indicating a constant result from tarantula bites.

Dr. Puckett talked on "Phimosis in the Infant Male", raising the question of proper procedure as to circumcision at birth. Practice varies in the work of several men who expressed themselves on this, from doing nothing at all at or near birth to circumcision of every male child. No statistics were given showing differences in results in after life.

Dr. Parks gave an outline of the procedure for vaccinating dairy cattle against anthrax, with the effects on their milk, none of which are detrimental to its use, and the attitude of the Public Health Service toward the disease.

Dr. Pate followed with a report of some cases of suspected anthrax in human beings. He gave the symptoms presented in detail and outlined his treatment. Dr. Miller followed with an explanation of his work in connection with eradication of rodents and canine carriers of anthrax, explaining the necessity of quick and thorough action, where it is demonstrated that the disease exists.

Major Anderson explained the similarities and differences in symptoms in anthrax and tularemia, holding out the possible theory that our trouble down here may be the latter disease.

Dr. Parks expressed the firm conviction that this Society should meet at least once a month and made a motion that we meet on the 22nd day of October, at Artesia, which motion carried.

Dr. Stroup, as President of the Pecos Valle Medical Society, gave an invitation to all present to attend the meeting of that body at Clovis on the 30th of October.

Meeting adjourned to meet in Artesia on October 22nd.

C. RUSSELL, Secretary.

BOOK REVIEW

A MIND THAT FOUND ITSELF. An Autobiography, by Clifford Whittingham Beers. Revised Edition, 1923. Doubleday, Page & Co., New York City.

From a letter to the author: "You have handled a difficult theme with great skill, and produced a narrative of absorbing interest to the scientist as well as layman. It reads like fiction, but it is not fiction; and this I state emphatically, knowing how prone the uninitiated are to doubt the truthfulness of descriptions of abnormal processes."—William James, Professor of Psychology at Harvard University.

The first edition of this book was published in 1908, being the result of Mr. Beers' state of mind expressed in his own words when he finally returned home after three years years spent as a mental patient in institutions: "I have decided to devote the next few years of my life to correcting abuses now in existence in every asylum in this country."

Pollen Asthma

SEASONAL asthma is usually caused by pollen sensitivity. Even in perennial asthma, pollens are frequently found to be primary or secondary causative factors. Hence, it is now recognized that in the diagnosis of asthma, pollen proteins should be used in association with food, epidermal, bacterial and other proteins. Diagnostic pollens are, however, of particular importance when testing cases where symptoms are accentuated during the pollinating seasons.

List of pollens showing regional distribution and time of vollination sent on request.

THE ARLINGTON CHEMICAL COMPANY

YONKERS, NEW YORK

From his vision of what might be done resulted the National Committee for Mental Hygiene, which now has 26 state societies auxiliary to it; which publishes what is probably the best journal available on the subject of mental hygiene; which has established clinics, carried on mental hygiene service, investigated institutions, and in every way promoted the improved care of the mentally ill, and educated not only the medical profession, but the public in the idea of preventing many mental diseases by prophylactic agencies.

The book itself describes vididly the patient's contacts with ignorance, social indifference, political depravity, commercialism and medical incompetence, as he suffered, opposed and damned them. His three years of mental breakdown included residence at home, in a private sanitarium, in a state institution for the insane and in a private institution to which mental cases were legally committed.

In these places he became personally acquainted not only with some employees eminently qualified for the work they were doing, but also with stupid, ignorant, brutal attendants, and unthinking medical assistants. He lived through all phases of institutional life from the padded cell and strait-jacket then in vogue, to the unsupervised parole of the convalescent.

Thanks to a retentive memory and numerous records surreptitiously written, the story is wonderfully complete.

The result is a classic of human revelation which should be read by every physician.

THE EFFECTS OF REMOVAL OF DENTAL INFECTION ON CHRONIC GASTRO-INTESTINAL DISORDERS. G. Reese Satterlee, M. D., New York. Med. Jour. and Record, May 21, 1924, p. 481.

In a recent study of 1,512 patients, it was noted that often discouragingly poor results followed abdominal operations even when the best postoperative medical care was given; that in the past three years much more satisfactory results were secured in similar patients in whom all obvious foci, oral or otherwise, were removed prior to operation; that a rapidly growing group of patients with classical symptoms of ulcer, cholecystitis, gastroenteritis and colitis have been cured by surgical removal of foci of infection, without abdominal operation.

While this paper emphasizes dental infection, it is necessary that a complete survey for all possible foci be made, particularly the tonsils and the sinuses of the head. It is necessary to have a complete x-ray study of all the teeth, and suspicious teeth which are not extracted should be watched by x-ray examinations every six months.

Absence of pain is a characteristic of streptococcus infection about the teeth, though discomfort is usually present; there is also frequently a peculiar metallic taste.

A series of seventy-two cases is tabulated showing the effects upon gastro-intestinal disorders, of attention to foci of infection especially about the teeth.

W. W. W.

ABSTRACTS

HEAD INJURIES. John F. X. Jones, M. D., and George E. Pfahler, M. D., Philadelphia, Pa. Medical Jour. and Rec., May 7, 1924, p. 442.

This is a report of fifteen cases of head injury observed at the Misericordia Hospital, during February, March and April, 1923; they comprise the following injuries: (1) extradural and subdural hemorrhage with mul-

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COOLIDGE X-RAY TUBES. 5 styles, 10 or 30 milliamp.—Radiator (small bulb), or broad, medium or fine focus, large bulb. Lead glass shields for radiator type.
DEVELOPING TANKS. 4, 5, or 6 compartment stone, will end your dark-room troubles. Five sizes of enamel steel tanks. Shipments from Boston, Brooklyn, Chicago or Virginia.
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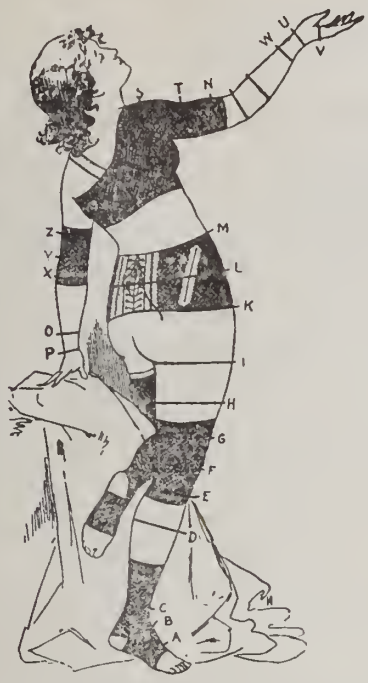
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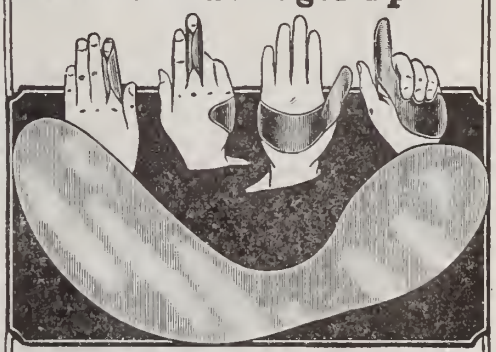
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tiple fractures; (2) basal compression; (3) extradural and subdural hemorrhage; (4) concussion; (5) linear fracture without intracranial injury; (6) laceration; (7) concussion, subdural hemorrhage and compression without fracture; (8) concussion with hemorrhage, compression probably prevented by drainage through lines of fracture or lumbar puncture; (9) compound depressed fracture; (10) fracture of vault without symptoms of intracranial injury; (11) simple fracture of vault and laceration; (12) concussion and multiple lacerations; (13) fracture of skull without symptoms of brain injury; (14) compound fracture and concussion; (15) compound fracture.

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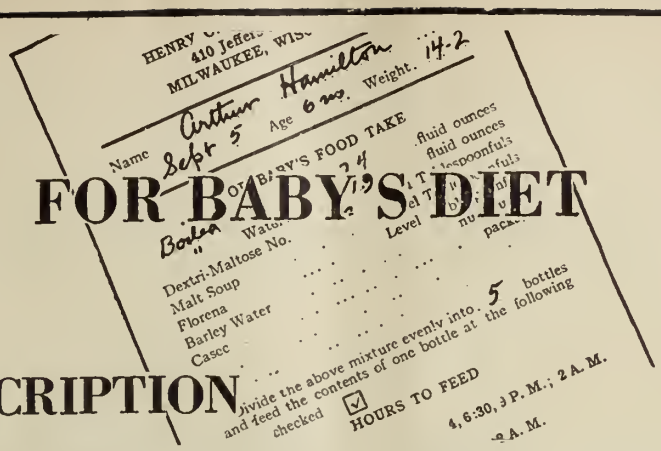
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VOLUME VIII NOVEMBER, 1924 No. 11

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For Table of Contents—See Advertising Section Page 1

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ORIGINAL ARTICLES

THE HISTORY OF THE MEDICAL DEPARTMENT OF THE ARMY AND SOME NOTEWORTHY MEDICAL OFFICERS 517-536
(Historical Symposium by Officers of the William Beaumont General Hospital, El Paso, Texas.) Lt. Col. M. A. W. Shockley, Maj. S. M. Browne, Capt. L. A. Lavanture, Maj. F. E. Gessner.

GANGRENOUS TYPE OF POSTOPERATIVE PNEUMONIA (13 illustrations) 536
Willias S. Lemon, M .D., and Arthur E. Mahle, M. D., Division of Medicine, Mayo Clinic, Rochester, Minn.
(Discussion by Drs. C. C. Davis, Albuquerque, N. M.; A. M. Forster, Colorado Springs, Colo.; K. D. Lynch, El Paso, Texas, and Dr. W. S. Lemon.)

THE AMBULATORY TREATMENT OF PEPTIC ULCER 552
Dr. Ernest Clyde Fishbaugh, Los Angeles, Calif.
(Discussion by Drs. W. H. Woolston, Albuquerque, N. M.; R. O. Brown, Santa Fe, N. M.; E. C. Fishbaugh.)

CASE REPORTS OF CERTAIN DISEASES SIMULATING TUBERCULOSIS 557
A. M. Forster, M. D., and T. J. Kinsella, M. D., Colorado Springs, Colo.
(Discussion by Drs. W. A. Gekler, Albuquerque, N. M.; Orville Egbert, El Paso, Texas; A. M. Forster.)

DIET AFTER WEANING 561
Dr. M. K. Wylder, Albuquerque, N. M.
(Discussion by Drs. E. F. Frisbie, Albuquerque, N. M., and M. K. Wylder.)

LENTICULAR DYSTONIA (Case Report) 564
Dr. E .A. Duncan, El Paso, Texas.

EDITORIAL AND NEWS

EDITORIAL AND NEWS 566-576
ST. JOSEPH'S HOSPITAL (Phoenix) STAFF MEETING.
DEACONESS HOSPITAL (Phoenix) ANNUAL MEETING OF STAFF.
PERSONALS AND NEWS.

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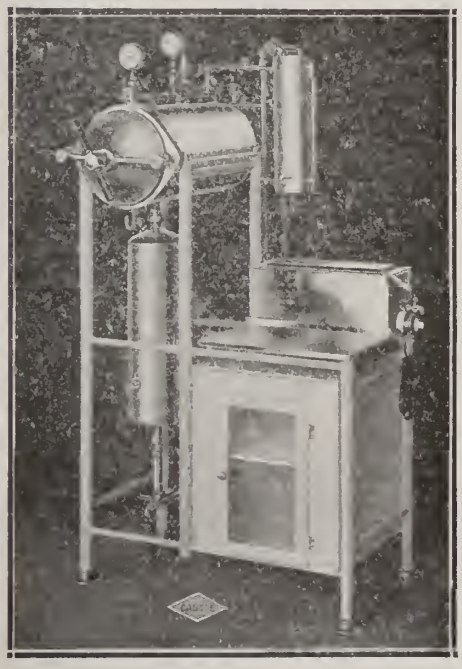
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THE HISTORY OF THE MEDICAL DEPARTMENT OF THE ARMY AND SOME NOTEWORTHY MEDICAL OFFICERS

M. A. W. SHOCKLEY, Lt. Col., M. C., U. S. A.

In presenting these subjects, it is my desire and that of my associates to disclaim any original research, but to admit frankly that, like Kipling—

"When 'Omer smote 'is bloomin' lyre
'E'd 'eard men sing by land and sea,
And what he thought he might require
'E went and took—the same as me."

We have taken the matter piecemeal or in toto from the several students and writers given in the bibliography, using their thoughts and language wherever it seemed advantageous. This history is taken largely without change from Colonel Kean's monograph.

The short biography of General Gorgas is taken with little change from Dr. Franklin Martin's monograph.

The first semblance of an Army Medical Department of the United States was created by the Provincial Congress of Massachusetts Bay Colony, which created Surgeons, after examination, for the several regiments raised in May, 1775. It is said of this examination that one of the candidates, having been asked how he would promote sweating in a rheumatic patient, replied: "I would have him examined by a medical committee."

After the battle of Bunker Hill (Breeds), hospitals were established in the vicinity and Congress issued warrants to surgeons and mates. At this time the entire medical establishment was termed "the Hospital."

The Medical Department proper of the United States Army had its beginning on the 27th of July, 1775, when the Colonial Congress at Philadelphia voted a medical establishment, or, as it was then called, "an hospital," for the Army. Prior to this enactment the surgeons of the forces before Boston had been appointed by the colonels of regiments. Of course, among these surgeons there could be no cohesion or effective co-operation, and, as General Washington wrote to the Congress at Philadelphia, affairs were in a very unsettled condition. "There is no principal director nor any subordination among the surgeons; of consequence, disputes and contentions have arisen, and must continue until it is reduced to some system."

The first department consisted of the director general and chief physician, four surgeons, twenty surgeons' mates, an apothecary, a clerk, two storekeepers, and a nurse to every ten sick. It may be of interest to mention that the pay of these officers was as follows: The director general, $120; the surgeons, $40; the

(An historical symposium by officers of William Beaumont General Hospital, U. S. A.)

surgeons' mates, $20; the storekeepers, $4, and the nurses, $2 a month.

Dr. Benjamin Church of Boston was elected director general, and he was given the appointment of all the personnel of "the hospital", except the surgeons' mates, who were appointed by the surgeons. Dr. Church had a reputation for culture and professional skill, but was, a few months after his appointment, detected in treasonable correspondence with the enemy, deposed and thrown into prison. He was succeeded by Dr. John Morgan of Philadelphia, a man of much energy and administrative ability as well as professional skill. He soon gained the friendship and support of General Washington, and these he always retained.

With the extension of the theater of war, the number of surgeons was increased, and Drs. Skinner and Shippen were named chief surgeons for the northern department and the forces on the west bank of the Hudson. The organization was, however, too loose to secure efficiency or concert of action. The relations of the regimental surgeons to each other and to those in charge of the general hospitals were entirely undetermined, and the department surgeons refused to admit the authority over them of Dr. Morgan. There was besides no well-arranged system of medical supply, and in consequence there was much suffering, and complaints multiplied. As has happened since, more than once, Dr. Morgan was punished for the very shortcomings for which he had in vain asked Congress to provide a remedy, and he was dismissed in January, 1777. Congress the next year exonerated him from all blame, but did not reinstate him.

A complete and elaborate organization of the medical department, modeled on that of the British Army, was adopted in April, 1777, and Dr. William Shippen was elected director general of the new establishment. Deputy director generals were provided for the northern and southern departments, and under these a physician general and surgeon general in each district, "whose business it shall be to superintend the practice of physic and surgery in all the hospitals of the district." This separation of the practice of physic and the practice of surgery, which obtained in Europe at that time, and in England, has, in civil life, lasted until the present day, necessitated a most cumbrous and awkward dual organization, which soon disappeared under the rudely practical test of war. It is probable that most American physicians at that time, outside the larger cities, practiced surgery to some extent, in addition to the practice of physic. The regimental surgeons seem from the first to have combined the two arts, and we find in the bill, which, in 1780, reorganized and simplified the medical establishment, an explicit provision that "there shall be three chief hospital physicians who shall also be surgeons, one chief physician who shall also be a surgeon, one chief physician who shall also be a surgeon to each separate army, fifteen hospital physicians who shall also be surgeons," etc. But although the medical officers of the Army thereafter appear to have been both physicians and surgeons, the former title seems to have been rather reserved for the higher grades, while the title "surgeon" became by the end of the Revolutionary War generic for all medical officers.

At the end of the Revolution the Army was disbanded, except fifty-five men at Fort Pitt and twenty-five at West Point to guard the military stores at these places. The officer highest in command was a captain, and the medical department was reduced to the vanishing point. The Revolution had produced a number of distinguished military surgeons, among whom were Cochran, John Warren, Craik and Tilton, in addition to those already named. The pressure of Indians on the western frontier after a few years prevailed over the morbid fear of a regular army with which our ancestors of a century ago were possessed, and in

1789 a regiment of regular infantry and a battalion of artillery were organized, with a medical service of one surgeon and four surgeons' mates.

Our first hospital regulations were drafted by Dr. John Morgan, after conference with Washington, in 1776-77. Dr. Morgan published several works of merit on the practice of medicine and with Dr. Shippen assisted in founding the Medical School of the College of Philadelphia.

Baron Von Stuben drafted the first army regulations in 1780 and included therein several medical department regulations.

In 1778 Dr. William Brown, Physician General, published anonymously the earlier American Pharmacopoeia.

In 1777 Benjamin Rush published a pamphlet on "Hygiene of Troops."

In 1777 Dr. Shippen planned the flying ambulance. He was one of the founders of the Medical School of the College of Philadelphia and occupied the Chair of Anatomy and Surgery.

On demobilization after the Revolution, the Hospital Department was practically abolished. June 2, 1784, the army had 80 privates.

In 1792 the army was reorganized as a legion of 5,120 men, with Richard Allison as Surgeon to the Legion.

May 3, 1798, Congress authorized an army of 10,000 men and James Craik was appointed Physician General. These forces were disbanded in 1800. Dr. Craik was a companion of General Washington during his early wilderness adventures, a noted practitioner of the day and the involuntary cause of Washington's early death.

The War of 1812 brought an army again in the field, but as the medical department was without a head and the surgeons had not even assimilated rank, good medical administration was impossible. In March, 1913, Congress created the positions of physician and surgeon general and apothecary general, the latter to act as assistant to the former, and as medical purveyor. The surgeons were divided into hospital and regimental surgeons, of which the former were superior in rank and pay. Both had mates or assistants, and there were in addition post surgeons who ranked with the mates.

The title of surgeon general appears first in the Act of May 14, 1818. Joseph Lovell was appointed to this position, and in that year he made the first annual report of the surgeon general to the Secretary of War, and also drew up a set of regulations for the medical department. He remained for eighteen years at its head, and during that time, by his ability and force of character, shaped and organized the corps of army surgeons into a coherent and efficient medical staff. It was during the tour of Surgeon General Lovell that Surgeon William Beaumont made his scientific investigations of the functions of the stomach and gastric digestion. Surgeon General Lovell was succeeded by Thomas Lawson, a man of strong character and fine professional and administrative abilities and withal a brave and ardent soldier, and a most original character. He entered the navy in 1809 as surgeon's mate, but left that service for the army in 1811. His service as a medical officer of the army covered the remarkable period of fifty years and three months, and included active and distinguished service in the War of 1812, the Indian Wars and the Mexican War. When he became surgeon general, in 1836, medical officers were without military rank, and in addition to the great disadvantages of such a status, suffered frequently from the insolence and contempt with which the line officers of that day, following the traditions of the British service, were inclined to regard the medical profession. Surgeons, for example, were not entitled to a salute from enlisted men, and when serving on boards were ranked by the youngest subaltern in the service. In the new uniform, adopted in 1839, they were allowed a sword, but not the officers' epaulettes, an aiguilette being prescribed instead; "a piece of tinsel on one shoulder," as Lawson contemptuously described it.

To establish and maintain the dignity of his profession and his corps, was to Thomas Lawson a sacred mission, to which he devoted himself with such courage, pertinacity and keenness of wit that he achieved success in the all important claims advanced in behalf of his corps, culminating in the Act of February 11, 1817, which conferred on medical officers the assured and honorable status of definite military rank. It is a tradition in the service that on the passage of this act the grim old fighter sent around to medical officers a confidential circular to the effect that now that they had the status of officers they must promptly challenge any other officer who failed to show them proper respect. This they did not fail to do and the army mortality statistics took a sudden jump.

The medical service of the Mexican War seems to have been performed with the same efficiency, courage and devotion to duty which marked all the operations of the small but glorious armies under Scott and Taylor, and such men as Satterlee, Tripler, Simpson, Cuyler, Wright, Moore and Barnes laid in it the foundation of reputations which were destined to grow under the far wider responsibilities of the Civil War. In the fierce assault of Molino del Rey, Assistant Surgeon William Roberts was killed and Assistant Surgeon James Simons were wounded.

The thirteen years which intervened between the Mexican War and the outbreak of the Civil War were years of activity and progress for the medical corps, although the Utah Expedition against the Mormons in 1858 was the only military event of note. An important advance in the standard of examination for admission was made in 1849, when a knowledge of Latin, of physics, of practical anatomy in the form of dissection, and clinical experience acquired either in a hospital or in private practice were made prerequisites. In 1850 the Medical Department of the Army was first formally represented at the annual meeting of the American Medical Association.

The Civil war was the first in which large armies made their appearance on American soil, and in these great army corps of volunteers many of the glorious traditions and hide-bound prejudices of the old army disappeared along with its regiments and batteries. Yet it was none the less the leaven hid in three measures of meal, which leavened the whole lump, and this is true not less of the Medical Department than of the line.

On January 1, 1861, the army numbered 16,400 and the medical officers 115, or .7 percent of the whole—a considerably greater proportion, by the way, than exists today. Although by far the largest of the staff corps, it had the smallest proportion in the higher grades, and this also is still the case, with the single exception of the Signal Corps, the junior of all, whose handicap is perhaps a matter of inheritance, as its originator, Myer, was a medical officer.

The medical history of the Civil War marks an epoch in military sanitary organization even greater than was made in the art of war by Sheridan's use of cavalry or the hasty entrenchments of Lee. It is a glorious chapter of American history, but the full story of the ability and devotion of the surgeons of the Civil War, regular and volunteer, must be sought, not in the limits of an article, but by those who have industry and good eyesight, in the ponderous volumes of microscopic print which make up the "Medical and Surgical History of the Rebllion."

Surgeon General William Alexander Hammond, 1862-1864, was preeminent during this period as a neuropsychiatrist. He wrote a standard text on neurology and many other works. He quarreled with Secretary of War Stanton and was tried and dismissed. History shows that it was not difficult to displease Secretary Stanton.

Other medical officers of this period of noteworthy achievements were:

Jonathan Letterman, who founded medical field organization which has been the basis of all American and European field organizations.

McParlin, medical administrator.

Keene, later noted as a surgeon.

Smart, a noted medical administrator.

Tripler, medical administrator.

John Shaw Billings, a noted medical bibliographer and organizer of the Surgeon General's Library and Museum.

The idea of medical organizations in the field, drilled and trained to gather up the wounded from the battlefield, transport and care for them, developed by Larrey and Percy in the Napoleonic wars, had perished with the armies of the First Empire under the retroactive prejudices of the old monarchies, and the military taboo of even republican America forbade a physician to exercise the sacred function of "command" over trained enlisted assistants of his own department or even to have a permanent and unquestioned jurisdiction over the mules and drivers of the medical ambulances. He controlled in battle his own two hands, and these only, unless the colonel saw fit to give him the uncertain and doubtful assistance of the regimental band.

The admirable medical organization of Letterman disappeared with the armies of Grant and Sherman, and Congress, weary of war, could not be induced to take interest in any military matter, except in the direction of reduction and economy. While all other nations made haste to apply the lessons of our war and to remodel their medical organizations in accordance with them, our own Medical Department reverted to antebellum conditions and went backward. The hospital stewards were the only permanent enlisted personnel and all nursing and other work about the hospitals was done by an uninstructed and constantly changing personnel of men detailed from the companies.

No worse system could have been invented, and yet it lasted twenty-two years, until, in 1887, the first step toward a modern organization was made by the establishment of a hospital corps, consisting of privates and two grades of non-commissioned officers. The medical officers then began the systematic training of the personnel and the study of modern medical organization with a view to war conditions. This movement unfortunately was misunderstood by the officers of the line and met, especially at first, with much ridicule and covert opposition, the use of military titles by medical officers being especially resented. In 1892 the Army Medical School was established in Washington for the instruction of young medical officers in hygiene, medical administration and other branches of special importance in military medicine. The influence for good of this school has been already marked and is constantly widening, and now that the course has been thrown open by act of Congress to officers of the organized militia, it has become an institution of national importance, and together with the Medical Field Service School, established by Surgeon General Ireland at Carlisle Barracks, Pa., in 1919, serves to give medical officers excellent military training.

The outbreak of the Spanish War in 1898 found the Medical Department with a personnel of 177 commissioned officers and 750 enlisted men. The number was barely sufficient to perform the medical service of the regular army of 25,000 men in time of peace. When a volunteer army of 250,000 men was mobilized, and at the same time an expedition embracing practically the entire regular army was organized to attack Santiago, it was immediately evident that if the regular regiments were to be cared for by regular medical officers, but few would be left to organize the medical service of the volunteer armies. Each of the volunteer regiments brought with it into service three regimental surgeons and three hospital stewards, but no privates. The regimental and field hospitals had to be organized at the expense

of this regimental medical personnel. The enlisted strength of the regular hospital corps was inadequate for 25,000 men, and as Congress failed to authorize the enlistment of volunteer Hospital Corps men, the situation in this respect became at once acute, and was only partially relieved by the clumsy expedient of authorizing the transfer of men from volunteer regiments to the regular Hospital Corps.

In the reorganization of the army by the act of February 2, 1901, no attention was paid to the recommendation of this commission or to those of the surgeon general, and the proportion of medical officers was not only not increased, but was greatly reduced, while their prospect of promotion was taken away by disproportionate increase in the lower grades.

During this period General George Miller Sternberg served as Surgeon General, 1893-1912. He was a noted bacteriologist and in addition to developing this study in the United States, pursued many original investigations. He wrote "The American Textbook of Bacteriology."

During General Sternberg's term the epoch-making proof of the means of transmission of yellow fever was established by Major Reed, Captain Carroll and Lieutenants Lazear and Agramonte of the Army, and the means of prevention demonstrated by Major Gorgas, afterward sanitarian for the world, and Surgeon General of the Army.

From 1902 to the present date the history of the Medical Department has shown a material advance in the standing organization and scientific attainments of the organization as a whole and the personnel as individuals. By the act of 1908 the various corps were differentiated and the officers given actual rank in their corps rather than assimilated rank.

Actual field organizations for field service have been organized, maintained, modified and improved, in accordance with changed conditions. While suffering many reductions and changes due to congressional action, and need for economy, the basic organization of the Medical Department exists and constant study is being made to have the organization as nearly ready for expansion for field service as American political conditions will permit.

The Medical Department under Surgeon Generals Farwood, O'Reilly, Torney, Gorgas and Ireland was organized before and during the World War, so that of all departments of the army, it showed that it had no superior. Since the war it has continued material improvement. The most noteworthy improvements in organization since the Spanish-American War have been the establishment of the Nurse, Dental and Veterinary Corps and their Reserve Corps, and organization of Division, Corps, Army and Communications Zone, Medical Service, in co-ordination with the general organization of the Army. This organization permitted the United States to enter war (the World War) with a pre-formed system which did not require any general modification.

Medical personnel noted for scientific attainments during the period after the Spanish-American War, not mentioned elsewhere:

William Henry Farwood, Surgeon General 1912. Surgeon and prolific writer on surgery.

Lt. Col. Edward B. Vedder. Investigation and proof of food deficiency cause of beriberi.

Col. Edward L. Munson—Sanitarian. Author of Military Hygiene and one of the first teachers of medical tactics.

Lt. Col. Charles F. Craig, Bacteriologist and Helminthologist.

Lt. Col. Fielding H. Garrison, Medical Historian and Bibliographer.

Col. Louis A. La Garde. Specialist in gunshot wounds.

Col. Paul F. Straub. Published first book on medical field service. Medical service in campaign.

Col. Frederick Russel—Bacteriologist and Serologist. Introduced and symtematized American method of typhoid vaccination.

Col. Bailey K. Ashford—Sanitarian. Organized and maintained sanitation of Porto Rico. Eradicated hookworm infection.

We might have included many other medical officers of note with those mentioned during the past centuries and present decades, but I fear that we have already taken too much time. Many of those of past decades, I have not mentioned, you will remember. Many noteworthy medical officers of the present decade have been omitted because they are too contemporaneous to permit full valuation of their work at this time.

THE LIFE OF WALTER REED

S. M. BROWNE, Major, M. C.

Walter Reed, to whom the nineteenth century owed the last of her goodly array of scientific studies and discoveries, was born in Gloucester County, Virginia, September 13, 1851. The Reed family were of English extraction, descendants of Cir Christopher Reed of Chyp Chase Castle. His father was a North Carolinian by birth, though he spent forty years of his life in Virginia, as a minister of the Methodist Church.

Walter was the youngest of five children, four of whom were sons and the oldest a daughter.

The first years of his life were spent at Farmersville, Prince Edward County, Virginia, and here, at six years of age, he began his early education at a small private school kept by a Mrs. Booker.

His early childhood traits were always those of a gracious and jolly personality, finding a certain amount of pleasure in all things, but at an early age he began to manifest certain characteristics that made him distinguished in after life, namely—force of character, passionate desire for knowledge, with a keen sense of humor.

When he was at the age of 10, Civil War began. This, however, did not interfere with his early education, as he continued to study, except for one year, when all schools were closed. Early after the close of the Civil War, 1865, the Reed family moved to Charlottesville, Va., where young Reed entered a private school owned by a Mr. Abbott, a graduate of the University of Virginia.

He was well advanced for his age in the ordinary studies, but up to this time showed no especial liking for any science. He remained with this instructor for two sessions and entered the University of Virginia by special dispensation, when he was only sixteen. It was his earnest desire to finish his course, but as his two brothers were there also, and on account of the limited means of his father, this was impossible, he applied to the faculty to be certificated in the work that he had done, but this was refused on the ground of extreme youth. He then inquired of the faculty whether he would be allowed to take the degree of Doctor of Medicine provided he could pass the required examination. To this the faculty silently assented, thinking that the undertaking was an impossibility for so young a man. Reed at once began the study of medicine and graduated nine months later, in the summer of 1869, standing third in his class. The Dean remarked, as he presented his diploma, that he was the youngest student ever graduated from the Medical Department of the University of Virginia, but as he had fulfilled every requirement, the faculty was in honor bound to graduate him.

A few months after graduation, he went to New York and matriculated at the Bellevue Hospital Medical College, where he received the degree of Doctor of Medicine one year later. This being Reed's first visit to a large city, he made use of it to better himself in other lines, as well as that of

medicine. He never neglected an opportunity to hear speakers on literature, science and even law, as well as to enjoy good music and drama.

After finishing his course at Bellevue he served in several of the New York hospitals. Later he was appointed a charity physician to one of the poorer districts of New York and here came in contact with the real hardships and poverty of a large metropolis. While at one of the large Brooklyn hospitals he attracted the attention of Dr. Hutchinson, then the leading physician of Brooklyn, and through his influence was appointed one of the five inspectors of the City Board of Health. At this time he was only 22 years of age, but had established himself as a man quite versed in the art of surgery, as well as other lines of medicine.

In June, 1874, Reed paid a visit to his father in North Carolina, and during his stay in North Carolina he met Miss Emile Lawrence, who afterwards became his wife. On his return to New York he began to correspond with Miss Lawrence. Later in the year (1874) he made up his mind to give up the idea of general practice, and became an Army surgeon. His reasons, like those of many others, were that success in general practice depended largely upon social standing and the possession of wealth. These resources he did not have to rely upon, so he decided that he had best follow a line where his future was secure and he could pursue scientific study and research.

Resolutions, once made, caused him to prepare for the coming examinations with his usual thoroughness, and after many months of hard study he successfully passed the required examinations and was commissioned as an Assistant Surgeon in June, 1875. His first station was Willet's Point, New York. In the spring months of 1876, shortly before his marriage, he was ordered to Arizona. He was married April 25, 1876, and in May, he, with his bride, departed for the west, to begin his tour of garrison duty. His first western station was Fort Lowell, Arizona, and while stationed in this country was changed many times. While never in the field of active campaign, he was among, hostile Indians most of the time. He served many tours of duty as post surgeon and as such he was generally liked. At this time in the Army the post doctor was the only doctor for miles around and was called upon by everyone in the country side. Dr. Reed was often summoned hastily to attend a child dying with diphtheria or a fracture of the worst kind—or, more trying than any, a difficult childbirth. His interest and devotion to children was always one of his outstanding traits and often when he found some little child in great need he would appeal to his wife to allow him to bring it into their home, where it could receive the proper care and attention. To this she always rebelled, knowing that if she gave in their home life would be destroyed. On one occasion during his rounds he came upon a small Indian girl so badly burned that her people had left her to die. Her life he succeeded in saving and retained her as a nurse for his children.

In all of Dr. Reed's gentleness his sense of personal dignity and justice was strong and he never allowed even his superiors to infringe upon his rights, and often during his years of post life he would appeal to higher authority for justice which he maintained was due him.

In 1881 Dr. Reed was ordered to Fort McHenry, Maryland, and while there he really laid the foundations for his future distinction. This course of study was entirely too brief, as he was transferred to post duty again, and after five years in Nebraska was sent to Alabama, and while there in 1889 he began to feel the need of time and opportunity to study. He received many disappointments when he first applied. Shortly afterwards, however, the order of things was beginning to change, he was given station in Baltimore, Md., with permission to study some line of profes-

sional work at Johns Hopkins University. Even then he was not free to pursue the lines that he wanted without certain restrictions. It was suggested that he pursue lines of bacteriology and pathology in relation to general medicine and surgery. To this he showed great interest, but replied that he had been sent there to learn to better care for the sick soldier and not to do laboratory work or research. He began his work on the clinical side of the hospital, but fortunately for himself and the country at large, he was required to remain for only a short while. A new surgeon general came into power, and then he was given a more or less roving commission—and in the lines of bacteriology especially he began to show the utmost promise.

The winters of '90 and '91 were years of great worth, and at Johns Hopkins he made use of his hours in the most efficient manner, meeting cultivated scientific men. He was ever interested in the late discoveries, following many of the newer ones that made their appearance about this time, such as the discovery of the tubercle bacillus by Koch, etc. He always followed very closely all investigations at the hospital, and it was here, under Dr. Clement, that he gained his knowledge of the bacillus of hog cholera, which afterwards served him in such good stead, in ruling out the so-called cause of yellow fever given by Sanarelli. After staying as long as he was allowed in Baltimore, he was sent again for a short period to the west. In 1893 he was ordered to Washington to duty as Curator of the Army Medical Museum and Professor of Bacteriology at the Army Medical School. Both institutions at this time were more or less in their infancy. At this time he was promoted to the grade of major. This promotion practically ended his garrison life, which had lasted 18 years, with fifteen changes of station.

Reed continued untiringly on his scientific studies, and after his first paper on "Contagiousness of Erysipelas", he was a constant contributor in some form to scientific medicine. The discovery of the Klebs-Loefler bacillus was of extreme interest to him and he never lost a moment to further the cause of control of the dreaded disease, diphtheria.

In 1898, when the Spanish-American War broke out, he experienced great disappointment in not being given a responsible position, to which he thought himself justly entitled. Later, typhoid began to rage among the volunteer troops. Dr. Reed was made chairman of a board to investigate the cause and the modes of transmission of this disease. The other members were Dr. Vaughn of Detroit and Dr. Shakespeare of Philadelphia. Their work resulted in the publication of the report of the committee under the title of "The Report of Origin and Spread of Typhoid Fever in the U. S. Military Camps during the Spanish-American War", which was made available for the medical profession at large. The book, in two volumes, was a monument in itself and will be of value always as an epidemiological guide. Among some of the points brought out were: (1) the transmission of typhoid fever by flies; (2) contact with patients, handling bedding, etc.; and (3) contaminated drinking water. In 1899, when the work of this commission was over, Dr. Reed returned to Washington and shortly afterwards was detailed to begin the study and investigations of yellow fever.

Previous to this date there had been much said about the discovery of the specific cause of yellow fever by Sanarelli, an Italian scientist, and upon this foundation a board of officers consisting of Dr. Reed with Dr. James Carroll were appointed to investigate this finding and compare it with Bacillus "X" of General Sternberg's discovery in 1887. They soon found that the bacillus of Sanarelli was identical with the cultural characteristics of hog cholera, and they at once began another line of investigations. This work was published in 1900, in the Journal of Experi-

mental Medicine, under the heading, "A Comparative Study of the Biological Characters and Pathogenesis of Bacillus X (Sternberg), Bacillus Icteroides (Sanarelli), and the Hog Cholera Bacillus (Salmon and Smith)."

Early in 1899 yellow fever appeared in the American troops in Havana, and a commission was sent to Cuba to study the etiology. The commission, consisting of Drs. Reed (chairman), Carroll, and Lazear, all non-immunes, and Dr. Agramonte, a Cuban immune. After the preliminary meeting, two courses were decided upon, one the study of the intestinal flora for the causative organism, and, secondly, the theory of the conveyance by insects, advanced by Dr. Finlay in 1881. Many articles and theories were naturally forthcoming at this time, but Dr. Reed was much impressed by the work of Dr. Carter, U. S. Public Health Service, on the interval between infecting and secondary cases, and a study of the time elapsing caused him at this stage to insist upon changing their plans radically. The search for the causative agent was not abandoned, but took on a more secondary phase. And the ways and means by which the disease was propagated from sick to well was given first place.

The work of Ross on Malaria in Tropical Countries afforded considerable food for thought. The thermal state of the island of Cuba was worthy of consideration. Finally, following the lead made by Dr. Finlay nineteen years before, they began on the mosquito, culex fasciatus, as a possible host in the mode of transmission. The line of work being finally decided upon and the infecting sources to be tested, the question arose as to the using of humans for subjects of experimentation. After careful consideration, the commission decided that the results, if positive, would be of sufficient service to humanity to justify the procedure, provided, of course, that each individual subjected to the disease was fully informed of the risk and gave his free consent, the commission subjecting themselves to it first.

The experiments were first made on Dr. Carroll by allowing him to be bitten by several mosquitoes that had fed on yellow fever subjects, and he, in a few days, developed the disease in its fullest extent. These same mosquitoes produced like effects on other individuals. Dr. Lazear was accidentally bitten and died in very short order from the disease. This experiment was continued with many others and was so promising that it caused Dr. Reed to report in October, 1899, that "the intermediate host of yellow fever was the mosquito." This report was published by Dr. Reed and his co-workers in October, 1900.

This part practically assured, they set about to disprove other so-called methods of infection or sources of transmission of yellow fever. A camp was established in which the clothing of patients dying with yellow fever was used entirely and volunteers allowed to remain therein for a period sufficiently long for them to develop the disease. Along with this, the biting of individuals with infested mosquitoes was continued with success. Many volunteers were infected. The theory of spread by fomites was thoroughly studied and disproved. The infection of individuals by blood inoculation from actual cases was proven beyond a doubt, by actual experiments. As to the value of these experiments, one has only to refer to the work of Major Gorgas in Cuba to be convinced of their effectiveness when put in actual practice. He, knowing and relying on the slow progress of yellow fever, set about to destroy the infecting source or to prevent the mode of transmission taking place. This was accomplished by screening the patients infected with the disease, and destroying all mosquitoes that might come in contact with the patient. As a result of these effective measures, Havana was freed of yellow fever in ninety days. The values of the yellow fever commission's reports are, of course, many. It has annihilated the dreaded dis-

ease yellow fever, and put out of existence a disease that caused in 100 years an average of 1000 deaths yearly. The saving in money would amount to billions of dollars.

After Reed's return to this country he held the chair of Bacteriology at the Army Medical School and Columbia University. He devoted his entire time to the art of teaching, to which he was naturally adapted, spending his spare time in research and writing. On his return to Washington, D. C., in October, 1902, from a short vacation in Pennsylvania, it was noticeable that his health was failing, although seldom mentioning it. It soon told on his physical strength, and on November 20, 1902, he consulted with Dr. Borden, a brother officer, who diagnosed his condition as appendicitis and operated upon him, but peritonitis ensued, and Dr. Reed died on November 22, 1902.

Recognition by the nation as a whole was not made of Reed's great work. No Congressional thanks or stipend was offered, but nevertheless the medical societies of our country and of all others have spared no words to eulogize him, and to praise his work—that alone will ever be a lasting monument to Dr. Reed's untiring devotion and contribution to medical science. Standing in the shadow of the capital is his only monument and the only expression of appreciation of his great work—the mammoth and well known Walter Reed General Hospital.

WILLIAM BEAUMONT

CAPT. L. A. LAVANTURE

William Beaumont was born November 21, 1785, at Lebanon, Connecticut. He was one of nine children born to his parents. He lived the frugal life of the New England farmer at the close of the Revolution during his boyhood.

He received his early education at a private school at Lebanon, which probably did not rank any higher than the surrounding public schools of that time. Having reached his majority during the unsettled and changing times from 1785 to 1806 and having already shown symptoms of a restless ambition, it was natural that tilling of the soil and churchgoing were not entirely to his liking. He became restive, awaiting only the time when he could depart from his paternal roof as his own lord and master.

He left his father's home in the winter of 1806-7 with an outfit consisting of a horse and cutter, a barrel of cider, and one hundred dollars of hard earned money. Traveling north through the western part of Massachusetts and Vermont, he arrived in the spring at the little village of Champlain, on the Canadian frontier. For three years he taught school, at the same time reading medical works which he obtained from the library of Dr. Pomeroy of Burlington, Vermont.

In the fall of 1810 he went to St. Albans, Vermont, where Dr. Benjamin Chandler was the most prominent and capable practitioner. He was taken into Dr. Chandler's home as an apprentice with his own son John, who was reading medicine with his father. Two years later he was granted a license to practice by the "Third Medical Society of the State of Vermont."

September 13, 1812, he was received into the Army at Plattsburg, New York, as surgeon's mate, and was commissioned December 2, 1812, by President Madison. He took part in several engagements, the last being the battle of Plattsburg. In the latter part of 1815 he resigned from the army and entered private practice at Plattsburg, New York. In connection with his practice he conducted a drug and grocery store.

In these days it is interesting to note what was regarded as groceries and therefore necessities. The Platts-

burg Republican of September 6, 1816, contained the following announcement:

"Beaumont & Wheelock have just received and offer for sale at the lowest prices a large and well-selected assortment of Groceries consisting of Maderia, Port, London Particular, and Sherry wines; Cognac and New England Rum, Pierpont Gin, Mollassas, Tea etc., etc."

He established as lucrative a practice as the community afforded at that time, but happy in professional and social ties, Beaumont was discontented. The call of the army seemed ever to be ringing in his ears.

There had recently been a complete reorganization of the Medical Corps of the army and his friend and military comrade, Dr. Joseph Lovell, had been chosen surgeon general. The new order of things rendered active service in the medical corps of the army much more attractive than it had been during the years of his previous service. He made application for readmission to the service, which promptly received favorable action. He was commissioned by President Monroe on March 18, 1820, post surgeon of the army, to take rank from December 4, 1819. He was immediately ordered to Fort Mackinac, on the northwestern frontier. Here he performed the usual duties incumbent on a post surgeon. About one year later he went back to Plattsburg and was married, bringing his bride back to Fort Mackinac.

We now come to the incident which gave occasion for Dr. Beaumont to demonstrate his skill, thoroughness and originality. Early in June, 1822, an accident happened to one of the employees of the American Fur Company.

A group of men had gathered in the Company Store. A shotgun was accidentally discharged by one of these men, the contents hitting Alexis St. Martin in the stomach. Beaumont's own version of the accident was summed up in the following statement:

"Being then stationed at the garrison on that island and no surgeon within 300 miles, I was immediately called to his relief, and when I arrived at this place, 15 or 20 minutes after the accident, found him senseless and apparently in a moribund state. To endeavor to resuscitate and relieve his sufferings being the first impulse, I applied the best means in my power and took the responsibility of his surgical treatment and medical attendance."

The hospital records and bedside notes extending over a period of two years are a model of thoroughness and completeness that would be a credit to our modern day hospitals. I will quote a few extracts to give you a clear conception of the character of the case.

"Alex St. Martin, a Canadian lad about 19 years old, hardy, robust and healthy, was accidentally shot by the unlucky discharge of a gun on the 6th of June, 1822. The whole charge, consisting of powder and duck shot, was received in the left side at not more than 2 or 3 feet distance from the muzzle of the piece in a posterior direction, obliquely forwards and outwards, carrying away by its force the integuments more than the size of the palm of a man's hand; blowing off and fracturing the 6th rib from about the middle anteriorly, fracturing the 5th rib, rupturing the lower portion of the left lobe of the lungs and lacerating the stomach by a spicule of the rib that was blown through its coat lodging the charge, wadding, fire in among the fractured ribs and lacerating muscles and integuments, and burning the clothing and flesh to a crisp. I was called to him immediately after the accident. Found a portion of the lungs as large as a turkey's egg protruding through the external wound, lacerated and burnt, and below this another protrusion resembling a portion of the stomach, what at first view I could not believe possible to be that organ in that situation, with the subject surviving, but on closer examination I found it to be actually the stomach, with a puncture in the protruding portion, large enough to receive my forefinger, and through which a portion of his food that he had taken for breakfast had come out and lodged among his apparel. In this dilemma I considered any attempt to save his life entirely useless. But as I had ever considered it a duty to use every means in my power to preserve life when called to administer relief, I proceeded to cleanse the wound and give it a superficial dressing, not believing it possible for him to survive twenty minutes.

In attempting to reduce the protruding portion, I found the lung was prevented from returning by the sharp point of the fractured rib, over which its membrane had caught fast, but by raising up the lung with the front of the forefinger of my left hand I clipped off with my penknife in my right hand, the sharp point of the rib which enabled me to return the lung into the cavity

of the thorax, but could not retain it there, on the least efforts of the patient to cough which were frequent." * * *

"A lucky and perhaps the only circumstance to which his miraculous survival can be attributed was the protruding portion of the stomach instead of falling back into the cavity of the abdomen to its position adhered by the first intention to the intercostal muscles, and by that means retained the orifice in the wounded stomach in contact with the external wound, and afforded a free passage out and a fair opportunity to apply the dressings." * * *

"It is now going on the 7th month since the injury was received and the orifice of the stomach is still visible and but little contracted. The integuments are all cicatrized smooth to within the circumference of a half eagle immediately around the wound in the stomach. His health daily improving, his spirits good, his appetite regular, his sleep refreshing and all the functions of the system natural and healthy."

The county having refused any further assistance to the patient, who had become a pauper, Beaumont took him into his own family, providing for all his necessities. As the salary of an assistant surgeon at that time was $40 a month, with two to four rations daily, and with a family to support, this was a considerable added burden.

There can be no doubt after a careful perusal of St. Martin's case history that every possible effort was made to close the wound completely. The idea of carrying on a series of experiments on the stomach of St. Martin seems not to have occurred to him until early in 1825, just prior to his leaving Mackinac.

A series of experiments on digestion were conducted by Dr. Beaumont and published in the Medical Recorder. He noted the length of time required for the digestion of various articles of food suspended in the stomach by a silk string which he could introduce and withdraw at pleasure, thus noting the changes in these substances from time to time. Even these incomplete experiments assured him that the old theories of maceration and putrefaction were insufficient to explain the processes that he had observed, and that the gastric secretion possessed innate solvent powers.

At this time Dr. Beaumont took leave, taking St. Maritn with him. While on this trip St. Martin took French leave and, in spite of repeated efforts to get him back again, it was about four years before he returned to Dr. Beaumont.

Now that his dream was again realized, Dr. Beaumont lost no time in beginning anew his experiments on the stomach of St. Martin. With no laboratory equipment but a thermometer, a few open mouth vials, and a sand bath, he conducted at this isolated military post (Ft. Crawford) a series of observations on digestion which have not been excelled even under more favorable conditions and surroundings. Between December 6, 1829, and April 9, 1831, there were recorded fifty-six experiments. Later another series of 116 experiments were recorded.

The results of these experiments were finally published by Dr. Beaumont in a book of 280 pages, entitled "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." In all 238 experiments were conducted and recorded. Up to this time the status of our knowledge of the processes of digestion were very meagre and for the most part erroneous. A comparison of Beaumont's deductions with those of the most recent workers on the physiology of digestion shows that he anticipated some of their best results, notably the researches of Pavlow on the work of the digestive glands, Cannon on the mechanics of digestion, and others.

In the words of Vaughn, "he made such an exact study of the physical and chemical natures of the gastric juice that with the exception of the discovery of pepsin, the closest research of modern times has added but little to the work done by him."

His book was very well received, but naturally had a very limited circulation. The financial returns were disappointing and were far from covering the extra expense he had incurred for the support of St. Martin and his family.

In the fall of 1834 Dr. Beaumont was ordered to the arsenal at St. Louis for permanent station. In the meantime St. Martin had gone to Canada again and all efforts to induce him to return to Dr. Beaumont had failed. This was a great disappointment to Dr. Beaumont, as he wished to continue his experiments.

Private practice by the army surgeons at that time was encouraged by the Surgeon General. He opened an office in St. Louis and, due to his established reputation, strong personality, and splendid presence, private practice fell into his hands very quickly. Within one year he had established a practice with an income of $8,000 per year. His standing in the profession is shown by the offer of the chair of surgery in the first medical department established west of the Mississippi.

The new Surgeon General, Thomas Lawson, had been appointed in 1836. It seems that considerable jealousy existed between him and Dr. Beaumont. It was customary at that time for the older officers of the Medical Department to choose their permanent stations and not be disturbed thereafter, so that when in 1839 an order was issued for Surgeon Beaumont to proceed to Florida on an examining board, he tendered his conditional resignation, providing the department still insisted on his going to Florida. No change was made in the order, so, on January 20, 1840, Surgeon William Beaumont's resignation was accepted. He later attempted to have this resignation set aside, but was unsuccessful. His opinion of Surgeon General Lawson is expressed in a letter to another medical officer, an extract of which reads:

"Congratulating myself upon having escaped service under the present Chief of the Medical Department, I sincerely commiserate my associates in the Army who remain subject to his caprice and tyranny, the natural fruits of ignorance and vanity."

Thus was terminated his brilliant military career of more than twenty-five years. It seems sad indeed that his services should have been so abruptly and unsatisfactorily brought to a close. Even today his brilliant work is pointed to with pride by the officers of the Medical Corps of the Army. Surgeon General Torney in an address before the Philadelphia Medical Club cited Dr. Beaumont's work as the first great scientific achievement of a member of the Medical Staff.

Dr. Beaumont enjoyed a very extensive and lucrative practice in St. Louis until the time of his death in 1853. During all of this time he had endeavored to regain possession of St. Martin, but in spite of his desperate poverty, he would always put him off, so that Beaumont never saw him again after 1834. St. Martin lived to be 83 years of age and died June 24, 1880.

Dr. Beaumont lies buried in beautiful Bellefontaine Cemetery in the city of St. Louis, with a modest marble slab to mark his resting place. Few are the pilgrimages to his grave, and few there are who even know where lie the remains of this unique and remarkable man; yet all mankind has profited by virtue of his having lived and worked. Dr. Osler said of him, "The pioneer physiologist of the United States and the first to make a contribution of enduring value, his work remains a model of patient, persevering research."

His memorial, although belated, lies at the foot of Mount Franklin, the William Beaumont General Hospital.

GENERAL GEORGE MILLER STERNBERG

By MAJOR F. E. GESSNER.

It is difficult to consolidate into a few pages the broad achievements of General Sternberg. During his life he attained renown not only as a medical officer who rose to the highest honor of the Medical Corps of

the U. S. Army, but also as a scientist, as a philanthropist, as an author and as a broad minded citizen.

George Miller Sternberg was born at Hartwick Seminary, Otsego County, N. Y., June 8, 1838, and died in Washington, D. C., Nov. 3, 1915, at the age of 77 years. He was descended from one of the early German settlers of New York State. He spent his boyhood and received his early education at Hartwick Seminary, where his father was principal. At the age of 16 years he became self-supporting by teaching school in the vicinity of his home. He began the study of medicine at the age of 19 years, under the preceptorship of Dr. Horace Lathrope at Cooperstown, N. Y., and received the degree of doctor of medicine with the class of 1860 at the College of Physicians and Surgeons of New York. After graduating in medicine he practiced his profession in Elizabeth, N. J., until the outbreak of the Civil War.

In the year 1861, with the outbreak of the Civil War, Sternberg was appointed Assistant Surgeon, U. S. Army, after due examination. During the war he served in the Battle of Bull Run, where he was captured by the enemy and later made his escape after the expiration of his parole. He also served in the engagements at Gaines Mill, Turkey Ridge and Malvern Hill. Even during the early days of his career he showed exceptional ability and courage and received a brevet for meritorious service.

Following the war, Sternberg served at Fort Harker, Kansas, and encountered a severe epidemic of cholera in 1867. During this epidemic he lost his first wife. In 1871 he was Post Surgeon at Ft. Columbus during the yellow fever epidemic. It is probable that the impressions made by the ravages of these diseases had much to do with deciding his subsequent medical activities. As a result of his experience, careful observation and accurate reports of yellow fever at Ft. Columbus, he was detailed for duty in 1872 to New Orleans and Ft. Barrancas in the so-called yellow fever zone. He observed two epidemics of yellow fever at Ft. Barrancas during this time, and during the second epidemic suffered a severe attack himself, with many complications. His first publication of scientific value related to the clinical history of yellow fever as observed by him during these epidemics.

In 1876 Sternberg was ordered to the Pacific Coast for duty, and during this tour was engaged in the active campaigns against the Indians. During these campaigns he distinguished himself for gallant service in the performance of duty under fire at the battle of Clear Water, Idaho, and received a brevet Lieutenant Colonel in recognition of his service.

As a representative of the Medical Corps of the Army, Sternberg attended the meeting of the American Public Health Association in the fall of 1878 and on his return from this meeting he began his experiments to determine the practical value of commercial disinfectants which, until that time, had been used empirically. This work he continued in Washington and the laboratories of the Johns Hopkins University under the auspices of the American Public Health Association. This meant daily and exacting application over a period of years under conditions far from ideal in the light of our present knowledge. He won for himself, however, the Lomb prize in 1886 and in 1888 the results of his work were published in full in the Transactions of the American Public Health Association. This work alone meant much in the battle against infectious diseases. Sternberg revised the work in 1899 and it was translated into several foreign languages, and our present practical methods of disinfection are largely based on the result of this work, together with that of Koch. At that time, the accurate and logical methods of Koch were not available to laboratory workers in America, and Sternberg was the only worker in pure bacteriology. Only those familiar with the exacting methods of serious bacteriological research, con-

ducted by the immature methods of that time, can appreciate the magnitude of this work on disinfectants.

Coincident with his studies of disinfectants, Sternberg carried on researches in other fields of bacteriology. In 1880 he discovered a micrococcus in his own saliva, and that of other normal individuals, to which he gave the name Micrococcus Pasteuri. This organism, when introduced into the tissues of laboratory animals, produced a fatal septicemia. Later, in 1885, he discovered the fact that his micrococcus of sputum septicemia was identical with the capsulated micrococcus of rusty sputum of pneumonia described by Frankel. While it has fallen to the lot of Frankel to share the credit of this important discovery, there is no question that Sternberg first recognized and described the organism, although he did not associate it with pneumonia in his first publication.

In 1881 Sternberg proved conclusively that the so-called Bacillus Malariae of Klebs and Tommasi Crudelli, then attracting wide attention, had nothing to do with the causation of malaria. In 1885 he demonstrated for the first time in this country living motile Plasmodia Malariae, first seen by Laveran in 1880, and subsequently proved to be the cause of malarial fever.

Sternberg was also the first to suggest the role of leucocytes as defenders of the body against pathogenic bacteria. In one of his publications, in 1881, he suggested that the disappearance of bacteria from the circulation, observed in some of his experiments, "may be effected by the white corpuscles, which it is proven pick up after the manner of amoebae, any particles, organic or inorganic, which come in their way, and it requires no great stretch of credibility to believe that, like amoebae, they may digest and assimilate the protoplasm of the captured bacterium, thus putting an end to the possibility of its doing any harm." This explanation is commonly spoken of as Metschnikoff's Theory, since he has been one of its chief defenders as a theory of immunity, but it was clearly stated by Sternberg several years before Metschnikoff's first paper was published in 1884.

The tubercle bacillus described by Koch in 1881 was demonstrated and photographed by Sternberg the first time in this country in the same year. He also introduced the typhoid bacillus to the medical profession of this country in 1886 in a paper read before the Association of American Physicians.

Of the many and varied problems with which Sternberg was identified, probably none absorbed more of his energies than his investigations of yellow fever, which date back to 1871. In 1879 he began his search for the specific organism, while a member of the Havana Yellow Fever Commission, which lasted over a period of ten years. As a result of his work and the results of those working under him, the history of yellow fever was complete except for the discovery of the causative organism, leptospira icheroides, which fell to the lot of Noguchi. He was twice sent to Havana during the months of yellow fever prevalence, and to Rio de Janeiro and Vera Cruz to continue his investigations, and to the town of Decatur, Ala., during the yellow fever epidemic of 1888. His report of these extended investigations showed that researches to that date failed to demonstrate the specific cause of yellow fever, that the claims of Domingo Friere to have discovered the germ of the disease, his Crytrococcus Xanthogeniccus, and his method of producing immunity had no scientific foundation; that the bacillus of Gibier and the micrococcus tetragenus of Finlay and the microorganism encountered by himself and by other investigators bore no etiological relation to the disease. It speaks well of his work that even after it was known that the infective agent was transmitted through the bite of a mosquito it was not until years after that the true causative organism was found. It was believed that the spe-

cific cause was ultra-microscopic. Having exhausted all resources at his command, in search of the specific cause of yellow fever, by microscopical examination of blood and tissue, by cultural methods and by experiments on animals, he felt that direct experimentation on man was the only method left offering any promise of success. This line of work appears to have been pointed out to Major Walter Reed in 1900 when appointed chairman of the Yellow Fever Commission.

Having been appointed Surgeon General of the Army in 1893, General Sternberg was not able to personally continue his investigation of yellow fever, but he had interested other officers of the Corps, who continued the work more or less under his direction. In 1900 he organized the Yellow Fever Commission, of which Major Walter Reed was chairman, shortly after Sanarelli claimed to have demonstrated the bacillus icteroides as the specific cause of yellow fever and his work had been confirmed by two officers of the Public Health and Marine Hospital Service. Major Reed's investigations resulted in demonstrating that in yellow fever the specific infectious agent is present in the blood of the patient and that the usual and probably only method of transmission of the disease is through the bites of the stegomyia mosquito. This demonstration furnished the basis for preventive measures of incalculable value to mankind, which permitted the building of the Panama Canal and which has almost wiped yellow fever from the face of the earth today. Although General Sternberg did not take part in these experiments, he appointed the commission, suggested much of its work, and much of the success achieved was rendered possible by the preliminary work of General Sternberg, which had eliminated numerous errors and overthrown many erroneous claims for the discovery of the specific organism.

General Sternberg was the Surgeon General of the U. S. Army from 1893 to 1902, and as such did much to improve the efficiency of the Medical Corps. Even today the effects of his efforts are felt and many of his results stand as monuments to a man of great achievement and foresight, who fostered and inculcated a scientific spirit in his corps. He established the Army Medical School, which has become indispensable to the Medical Corps, and which has only lately been consolidated with the Walter Reed General Hospital, and at some later date the Army Medical Museum and Surgeon General's Library will be combined with it to form the greatest medical center in the world. He established laboratories for scientific investigation at most of the important army posts, provided modern operating rooms and encouraged their use by surgeons in the service; and established the tuberculosis hospital at Ft. Bayard, N. M., which has recently been turned over to the Veterans' Bureau for the treatment of veterans of the late war.

During the Spanish-American War, General Sternberg met all the increased demands upon his corps with efficiency in the face of legislative embarrassment and administrative obstacles, establishing a corps of female nurses for service in permanent hospitals, increasing the medical staff by officers selected from the Association of Military Surgeons, and afterwards supervising the organization of medical service in our tropical possessions. Four days after the declaration of war with Spain, General Sternberg issued instructions to all medical officers (Circ. I, S. G. O., April 25, 1898), calling attention to the dangers of infectious diseases, particularly malaria, typhoid fever, diarrhea, dysentery and yellow fever, and making recommendations for prevention of these diseases. The instructions in this circular are very complete, covering care of camp sites, latrines, kitchens, water, excretions of patients, etc., and even mentions at considerable length the probable method of typhoid and diarrheal diseases being transmitted through the

agency of flies. A noted sanitarian, in addressing the Medical Society of the District of Columbia in October, 1898, said: "Had the lessons of the Civil War and the note of warning sounded by Surgeon General Sternberg in his famous circular of April 25, 1898, four days after the declaration of the Spanish-American War, made a deeper impression upon our volunteer officers, the disgraceful insanitary conditions and dire consequences would not have been observed."

During the Spanish-American War he organized eight army hospitals at appropriate places, and equipped two hospital ships and one hospital train. He organized the female nursing corps, previously mentioned, which has become an indispensable part of our army, and the dental corps, which was so greatly needed. Both of these corps were organized in accordance with an act of Congress, passed on his recommendation.

General Sternberg was retired from the army in 1902, having reached the age limit for active duty, but he continued his duties as a citizen. He was affiliated with many organizations, in a conspicuous way, having to do with the welfare of Washington, D. C. He was president of two companies dealing with improvement of housing conditions in Washington, director and member of many hospital and tuberculosis committees, Professor of Preventive Medicine in George Washington University, member of all important medical societies, Fellow of American College of Surgeons, ex-president of American Medical Association, American Public Health Association, Association of Military Surgeons, and honorary member of many foreign medical societies.

General Sternberg was what might be called a self-made man. His early environment was not luxurious; a school teacher at sixteen; a student of medicine on borrowed money at nineteen, all of which money he afterwards returned; a surgeon in the U. S. Army at twenty-three—speaks for individual capacity that bade well to carry its possessor far in the race of preferment—as his subsequent history has well shown to have been the case.

WILLIAM CRAWFORD GORGAS

By LT. COL. M. A. W. SHOCKLEY, M. C.

William Crawford Gorgas was born in Mobile, Alabama, on October 3, 1854. He was the son of General Josiah Gorgas, of Hispano-Dutch ancestry, who was the chief of ordnance of the Southern Confederacy during the Civil War, and later the president of the University of the South, at Sewanee, Tennessee. His mother was Amelia (Gayle) Gorgas, daughter of Governor Gayle of Alabama.

General Gorgas was graduated from the University of the South with the degree of A. B. in 1875, and from Bellevue Hospital Medical College with the degree of M. D. in 1879. He entered the Medical Department of the United States Army on June 16, 1880, as first lieutenant, was advanced to captain in 1885, and to major in 1898.

In 1880 yellow fever was prevalent in Brownsville, Texas, in violent epidemic form. Conditions were bad beyond the power of words to portray to those who have no recollection of conditions in a yellow fever stricken city prior to 1880. The government as well as the people at large had been appealed to.

Gorgas, with the rank of lieutenant, was sent to Fort Brown, near Brownsville, to assist in the medical care of the civilian population. There he first met Miss Marie Cook Doughty, who was seriously ill of yellow fever, and there he also contracted the disease. He married Miss Doughty in Cincinnati on September 15, 1885.

Later, General Gorgas was in active service in Florida, in the west.

in the Dakotas, and in the old Indian Territory. He accompanied the military expedition against Santiago in 1898. While on duty before Santiago, General Gorgas was in charge of the field hospital for febrile diseases, some of which were yellow fever. He had many interesting, amusing and pathetic reminiscences of this service. Fate, possibly with a purpose, visited his system with yellow fever in early life, thereby making him immune to the disease. Because of his practical knowledge of yellow fever transmission, he was appointed chief sanitary officer of Havana, which post he occupied from 1898 to 1902.

During General Gorgas' tour as Sanitary Officer at Havana, I had the pleasure, in company with Colonel Theodore Lyster, now retired, of serving as his assistant. During this service General Gorgas, Lyster and myself lived in adjoining apartments in the old Maestranza, in which we had our offices. The constant association that we had personally and officially with this most charming officer made this for me the most instructive and delightful duty tour I have ever had.

In 1900 General Gorgas, as Sanitary Officer, was in close contact with the investigation into the cause of yellow fever that was being conducted in Havana by the Walter Reed Board. The memorable discovery made by this board revealed the cause of the disease; but it was General Gorgas who applied these principles and effected the eradication of yellow fever from Havana.

You will remember that Major Reed had constructed, in an open field some distance from Havana, two thoroughly screened huts, in one of which he maintained mosquitos, supposedly infected; in the other (mosquito free) he had non-immunes live among bedding and materials soiled by yellow fever cases. On an occasion early in the investigation, General Gorgas, Lyster and myself, all of us known to have had yellow fever, were invited as a pleasantry to occupy the mosquito house, but we all declined on the plea that as we were immunes the experiment would be useless, and as we were constantly exposed elsewhere, no proof of infection in the house could be secured.

In 1904 General Gorgas was appointed chief sanitary officer of the Panama Canal Zone, and in 1907 he was made a member of the Isthmian Canal Commission. In recognition of his work in Havana, his rank was increased to that of colonel by a special act of Congress in 1903, and he became Assistant Surgeon General of the United States Army. In 1915 General Gorgas and his associates on the Isthmian Canal Commission received a vote of thanks from Congress for distinguished service rendered in connection with the construction of the Panama Canal. This is one of the few instances in history where sanitary achievement has been recognized by the state since Hippocrates was awarded a civic crown by the citizens of Athens for averting a pestilence from that city. This reflects much credit on our national legislature as well as on Gorgas, for republics are usually unappreciative of the quiet conquests of science.

In 1913 General Gorgas went to Rhodesia, South Africa, at the invitation of the Chamber of Mines, Johannesburg, to advise as to the best means of preventing pneumonia and malaria among the native mine workers. He was appointed Surgeon General of the United States Army, with the rank of Brigadier General, on January 16, 1914, and was promoted to Major General in 1915. He served with great distinction as Surgeon General during the trying period of our participation in the World War, until his retirement, at the age of sixty-five, on October 4, 1918.

He never lost his interest in world sanitation. While he was stationed in the Canal Zone he visited Guayaquil, Ecuador, and mapped out a plan for the control of yellow fever in that disease-ridden district. In 1916 he was made chief of the special Yellow Fever Commission of the Rockefeller

Foundation, and spent several months in South America making surveys and laying plans for the eradication of yellow fever from localities in which it still prevailed.

After his retirement as Surgeon General, he immediately accepted the assignment to direct the yellow fever work which had been undertaken by the International Health Board of the Rockefeller Foundation. On May 7, 1920, he sailed for England, en route to West Africa, where he was to investigate the yellow fever situation. He fell ill in London on May 30, 1920, and died on July 4, 1920.

At the death of General Gorgas humanity lost a mighty genius and a noble friend.

Simple in character and habits, gentle, kindly, just and considerate in every way, he was an exemplar of the ideal of an American gentleman. Always a friend and never an enemy, he was nevertheless an indefatigable opponent of any person who persisted in a wrong, and never quit a conflict until the wrong was righted or the opponent defeated.

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GANGRENOUS TYPE OF POSTOPERATIVE PNEUMONIA

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Gangrenous pneumonia is only one of several types of postoperative pulmonary complications, but its character is so serious that it adds materially to the mortality percentages in any institution in which large numbers of operations are performed. The two great causes of death in such institutions are primary sepsis and secondray pulmonary complication. Sepsis will not be considered here except as it relates directly to the pulmonary complications. How important a role pulmonary complications in general may play, is best illustrated by reference to statistics gathered from foreign and American institutions. These indicate that sickness and death occur with such regularity that their incidence can readily be foretold; their relative frequency seems to be almost uniform in all large and well conducted institutions. It is to be expected that one in fifty patients operated on will develop some type of pulmonary complication, and that one in 185 will die from it. Deaths due to pneumonia alone, following operations of all types, are approximately 0.5 of 1 per cent, while the morbidity percentages are approximately 1.12 for general surgery, and 4.4 for laparotomies. Homans reports approximately 5 per cent from 16,043 laparotomies. Cutler and Hunt point out that a higher incidence of complications occurs when operative fields cannot be kept at rest. They assert that 2 per cent of all patients operated on, 4 per cent of all patients who have abdominal operations, and 8 per cent of all patients who have epigastric operations, develop pulmonary complications. McKesson made observations on postoperative lung complications, and combined statistics in 39,438 cases, in which the pulmonary morbidity was

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3.03 per cent, and the mortality 1.06 per cent. These are data that can be verified, at least approximately, in any hospital in which large numbers of such patients are under observation.

In 1910, Beckman reported on 3,657 operations from the Mayo Clinic, in which there was a pulmonary morbidity of 0.01 per cent (thirty-seven cases) and a mortality percentage of morbidity of 16 (six cases). In 1912, his report covered 5,835 operations with a morbidity of 0.015 per cent (eighty-nine cases) and a drop in the mortality percentage of morbidity to 7 (six cases), while in 1913, his report covered the results of 6,825 operations with a morbidity of 0.012 per cent (eighty-seven cases) and no mortality. This is the only statistical report of its kind in regard to mortality. The percentage of morbidity compares favorably with that of Ranzi of von Eiselberg's Clinic, who had an incidence of 3.8 per cent following 6,871 operations, and of von Lichtenberg, whose incidence was 1.9 per cent following 23,673 operations. In this country Armstrong had an incidence of 2.2 per cent following 2,500 operations with a mortality percentage of morbidity of 58.1, and Cutler and Morton reported on 3,490 cases with an incidence of 1.86 per cent and a mortality percentage of morbidity of 50.7. In 1920 Cutler and Hunt reported 1,562 cases from the same institution (Peter Bent Brigham Hospital) with a morbidity of 3.52 per cent, and a mortality percentage of morbidity of 20. A year later they reported 1,604 cases with a morbidity of 3.92 per cent, and a mortality percentage of morbidity that had fallen to 7.93.

For the three years reported by Beckman, there were 16.317 cases; fifteen of the patients (one in 1087) had died. In 1922, at St. Mary's Hospital (Mayo Clinic), 9,075 operations were performed, of which 5,661 were abdominal. The total mortality was 1.9 per cent, and the mortality for abdominal operations 2.8 per cent. Of the 164 patients who died, thirty-five were known to have pneumonia of various forms and degrees of severity. It was sufficiently serious to be considered the cause of eight deaths, a definite contributing cause of thirteen, and a terminal cause of fourteen. Twenty-four patients had bronchopneumonia, two had lobar pneumonia, one had embolic pneumonia, and eight had gangrenous pneumonia.

Instead of an anatomic classification, an etiologic one would be more instructive from the standpoint of the surgeon. The knowledge of the cause of the complication would suggest ways and means for prevention. Certainly any disease than can be foreseen should submit to treatment or prevention. The types of pneumonia seen in the Mayo Clinic may be divided as follows:

1. **The embolic type**—This type of pneumonia comes on suddenly, usually several days after operation, and is associated with bright red blood in the sputum, following the initial pleuritic pain. Stripped of the infective elements, from whatever source, such lesions usually appear and subside rapidly. They are small, circumscribed and lobular, rather than lobar, usually affect the lower lobe of the right lung, and are especially common following operations on the upper abdomen, especially on the stomach, and are serious only when they add to the load already being carried by a very sick patient whose reserve has already been taxed by an operation that in itself was a grave risk.

Because of the onset with pain, the persistence of pain, the lobular distribution throughout the lower lobes, and the cone-shaped x-ray shadow, Cutler and Hunt sponsor the embolic theory to explain postoperative pneumonia. They note the well recognized infrequency of lobar pneumonia, and believe it is due to the mechanism of production of the pulmonary lesion. They think this is another proof of the embolic origin of the complication.

2. **Auto-infection type** — The fact that one so infrequently finds necropsy evidence of thrombosis in cases of postoperative pneumonia, that the classical picture of embolic pneumonia is infrequently seen by the pathologist, and that the bacteriology is of the respiratory tract, suggest another mechanism, auto-infection. The two may interact, as has been shown. A lesion may form and be truly embolic in character. The infective factor may readily be present and prepared to change an infarct into pneumonia. The patient, when weakened by disease or the shock of operation, is infected by bacteria of which he himself is the healthy carrier. This type usually appears suddenly, within twenty-four to forty-eight hours after operation, without chill, but with a sharp rise in temperature, and frequently with moderate pleuritic pain. The temperature falls within the third to the fourth day by lysis, and the yellow mucopurulent sputum contains Group 4 pneumococcus. This is the form described by Whipple and Cleveland. Like them, we have found Group 4 pneumococcus almost always present, although recently the sputum from an extremely ill patient was found to contain Group 1 organisms.

3. **Epidemic pneumonia** — In the third type, that due to epidemic pneumonia, the patient operated on may obtain his infection through the air passages by breathing bacteria from persons who are infected by the specific organism. Such patients are susceptible to infection, as are patients outside the hospital, and an appreciable rise in incidence percentage is always noticed during epidemics; the organisms found belong to the group that prevails as the etiologic or inciting factor, increasing in virulence as they pass from patient to patient. It is in this type that organisms of Group 1, 2, or 3 are found on grouping the sputum, and the mortality varies with the severity of the epidemic.

4. **Terminal pneumonias**—The terminal pneumonias appear especially in debilitated patients suffering from chronic cardiac insufficiency, malignancy, nephritis, diabetes, and so forth, or in moribund states following operations. They present neither signs nor symptoms, the former because the patient's condition is such that diligent search is not desirable, and the latter because respiratory symptoms are overshadowed by those of dissolution. It is a type of pneumonia that is of interest as a pathologic condition, but not otherwise to the surgeon or physician because, though often anticipated, it does not respond to treatment.

5. **Aspiration pneumonias** — As I have mentioned, embolism is undoubtedly an important factor in the causation of pleurisy or pneumonia, very probably more important than has been suspected. Back of it, however, unobserved, is the circulatory defect, the weakened heart muscle, and the slowed stream, so commonly observed in the middle aged and the debilitated patient, and making the production of thrombi around the pelvic veins possible. We agree with Whipple that Group 4 is the most common type of pneumococcus found in the so-called ether pneumonias, which are, of course, really not ether pneumonias at all. The disease appears with equal regularity, regardless of the anesthetic or the anesthetists; (there were ten experienced anesthetists in the cases in the 1922 study). There were fewer instances of pulmonary infection among patients under local anesthesia, but there were fewer patients so treated; relatively the difference is insignificant when cases of equal severity and operative risk are compared. In less well-trained hands, however, the anesthetic is of decided danger. Irritation of the bronchi occurs and a descending infection of the respiratory tract results. These dangers are accentuated when the patients on the one hand are ill of debilitating disease of long standing, weakened sease of long standing, weakened from hemorrhage or the toxic effect of more acute illness, or reduced in vitality by the very nature or dura-

tion of the operation performed. On the other hand, when local anesthesia is used, in cases of throat operations, the danger, it would seem to us, is materially increased if the pharyngeal and cough reflexes are deadened.

FACTS DERIVED FROM EXPERIMENTAL WORK ON ANESTHESIA

Holscher believed that ether could not be blamed for all postoperative lung diseases, but felt sure that it had a greater influence in their production than other anesthetics. He quotes Norwert who says that the aspiration from the mouth during anesthesia is an important basis for lung infection, and that a paralysis of the soft palate, base of tongue and epiglottis occurs, so that mucus flows into the respiratory canal. This is aspirated into the depths of the respiratory tract and is the cause for respiratory infections. Holscher believed, however, that poor technic was more blameworthy, and performed numerous experiments to prove his contention. As a result he concluded that: (1) ether slightly alters the secretion, but does not cause an inflammation of the tracheo-bronchial mucous membrane, (2) during ether anesthesia, tracheal rales are due to the aspiration of mouth secretion, and can be avoided by proper technic, which will permit mucus to flow from the mouth; this can be accomplished by turning the head to the side and keeping the lower jaw elevated, (3) most of the infections of the lung after ether anesthesia are due to aspiration from the mouth, (4) the action of cilia of the trachea and bronchi is not disturbed during the anesthesia, and (5) the secretion of mucus during ether anesthesia is influenced not only by local stimulation, but also in a small degree by central stimuli.

Lichtenberg quotes from many authors, and especially from the work of Holscher, with regard to the marked excretion of saliva and mucus; he is of the opinion that mucus collecting at the entrance to the larynx travels down the air passage partly by inspiration and parly by its own weight. Henle calls attention to ether anesthesia, especially in relation to the previous effect of body cooling, and Armstrong has also stressed this factor, especially in upper abdominal surgery.

Myerson found that twenty-two of 100 patients having tonsillectomy under light anesthesia retained their cough reflex, but seventy-eight did not cough during the operative procedure, although they retained the laryngeal reflex. Of these only six were free from blood and mucus in the tracheobranchial tree, whereas eighteen of the twenty-two, who had cough reflex, had no blood or mucus when examined with the bronchoscope. When lightly anesthetized, the patient coughs only in the presence of increased irritability of the respiratory tract. Myerson believes that blood mixed with mucus does not carry a sufficient stimulus to set the cough reflex in motion.

In association with Dr. Mann we anesthetized dogs and placed bismuth in their mouths, carrying on the anesthesia until the animal died from it. The head was kept in the upright position, and after death the lungs were removed, after tying off the trachea. In such dogs the bronchi contained bismuth (Figs. 1 and 2).

It may be conceded that, under ordinary conditions, conscious adults do not aspirate foreign material; moreover, ether does increase the amount of mucus collecting in the pharyngeal well. Under certain conditions, such as (1) the debility previously referred to, (2) the failure of protective reflexes, when patients are extremely ill or delirious, unconscious, intoxicated, or insane, (3) the pain of an abdominal wound, (4) the tension of bandages that are allowed to be placed too high and to cover the lower ribs and the insertion of the diaphragm, (5) the lack of movement of the diaphragm and subsequent massive, pulmonary collapse, as described by Pasteur, Briscoe, Scrimger, Bradford, Elwyn and Girsdansky, and others, (6) the circula-

tory damage from disease or age, and (7) weakness of expiratory effort preventing expulsion, so that mucus churns about, sonorous rales can be heard, dyspnea and cyanosis appear, probably with depression of the protecting nervous center, and aspiration into the bronchial tree occurs. This mechanism, a similar but much more gross aspiration than that described by Lord as productive of "ether pneumonias," accounts for the type of aspiration pneumonia we shall describe here in detail.

The work of Myerson and Holscher, and the experimental work in the Clinic have proved that mucus and blood may invade the bronchial tree in both man and animal when anesthetized for surgical reasons. Vomiting, followed by aspiration, is a second mechanism by which foreign material can be carried to the lung. It appears, not during deep anesthesia, but at the onset of unconsciousness and as consciousness returns. The nursing care at these particular stages of anesthesia should be most watchful. It is the time, however, of greatest opportunity for error and neglect, especially postoperatively, because responsibility is being transferred from anesthetist to ward tender, and again to the nurse in charge of postoperative care. The distance from the operating room to the patient's bed provides for hidden dangers, not only from the causes already mentioned but also from chilling. In some large clinics these dangers are obviated by having patients transferred directly to a large warm room adjacent to the operating suite, in which they may regain consciousness under the observation of special nurses trained to care for them; this minimizes the opportunity for postoperative complications. Constant supervision alone can protect the shocked, sweating and nauseated patient from the gravest danger in surgery. Provided a good circulation is maintained and the lungs remain uninfected, the patient has little to fear from surgical operation except sepsis, and the usual dangers incident to his disease and operation. If carelessness exists at any time from the beginning of the anesthesia to the return of consciousness, than assurance is destroyed because pulmonary complications may appear and hazard his recovery. When aspiration of infected foreign material occurs suddenly, this material can be discovered in the bronchi and bronchioles if death succeeds quickly. In instances, however, in which death supervenes late, it is with the greatest difficulty that the original infective material can be discovered, and only a hint as to its origin can be obtained by the odor of the lung, or in case of vomitus, by the yellowish discoloration in the bronchial mucosa. In only one or two instances in the Clinic was it possible to discover evidence that definitely identified the aspirated material as vomitus.

Although unconsciousness from anesthesia is so important a factor in aspiration, it is by no means essential. Patients who have had perfectly smooth general anesthesia, or those who have had local anesthesia, and indeed those who have had no anesthetic at all, may succumb to aspiration pneumonia of gangrenous type, if (1) the operation performed was conducive to formation of much mucus, and the mouth is in an unhealthy or neglected condition, providing myriads of the usual forms of bacteria and also

LEGENDS

Fig. 1 (Dog H45). An x-ray picture of the lung of an etherized dog with 20 per cent barium solution poured into its mouth, 4 c.c. every two minutes until 50 c.c. was administered.

Fig. 2 (Dog H47). An x-ray picture of the lung of an etherized dog with 35 c.c. of barium solution poured into its mouth at intervals.

Fig. 3 (Case A404586). Prolonged case of gangrenous pneumonia. Photograph of hospital chart, showing irregular temperature and pulse, with increasing respiratory rate.

Fig. 4 (Case A417181). Acute case of gangrenous pneumonia. Photograph of hospital chart, showing rapid fall in temperature with rapid rise in pulse rate.

Fig. 5 (Case A411122). Acute case of gangrenous pneumonia. Hospital chart showing rapid rise in temperature and pulse.



FIG. 1

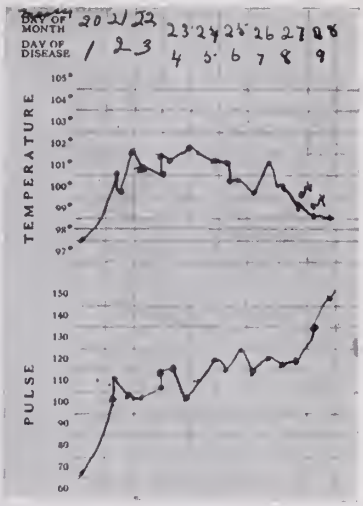


FIG. 4



FIG. 2

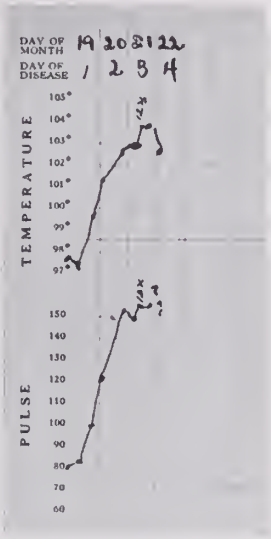


FIG. 5

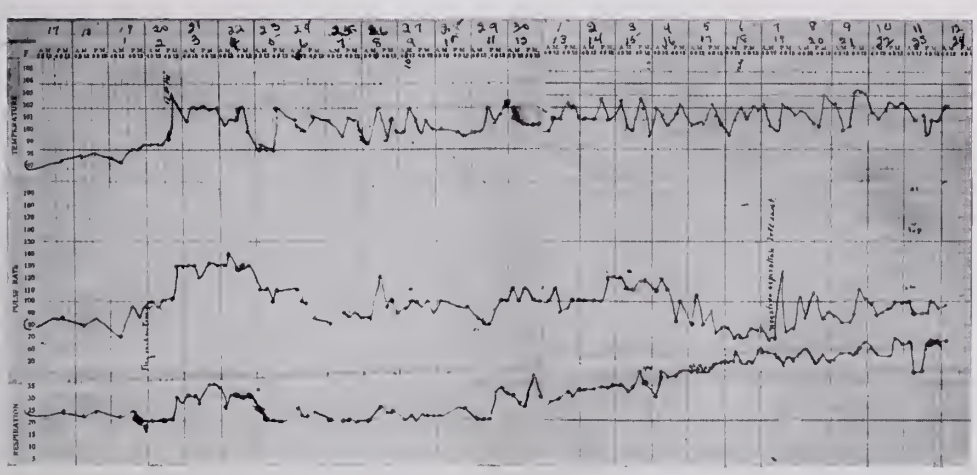


FIG. 3



FIG. 6

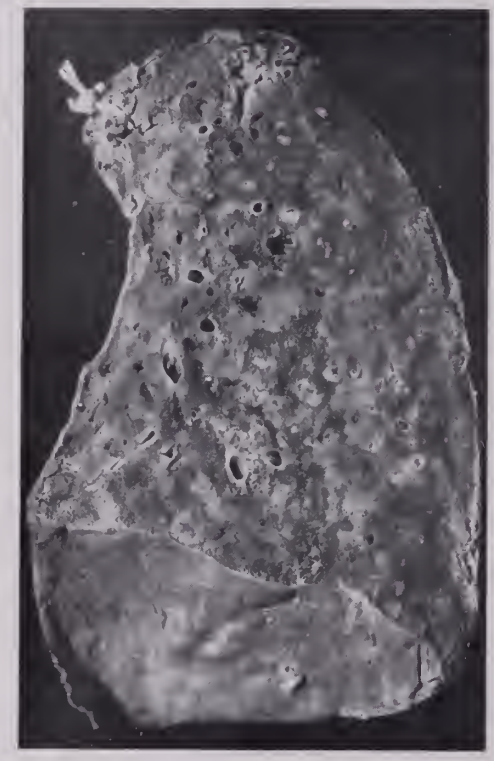


FIG. 7



FIG. 8

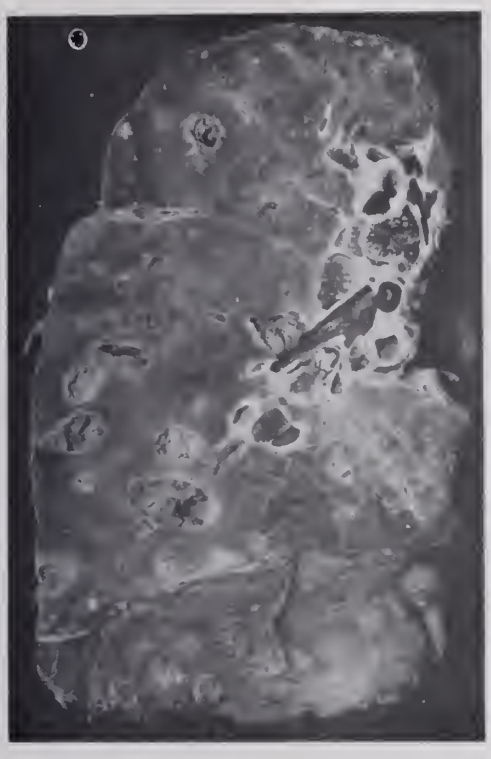


FIG. 9

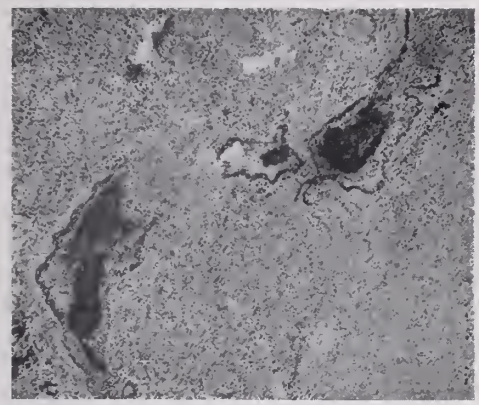


FIG. 10

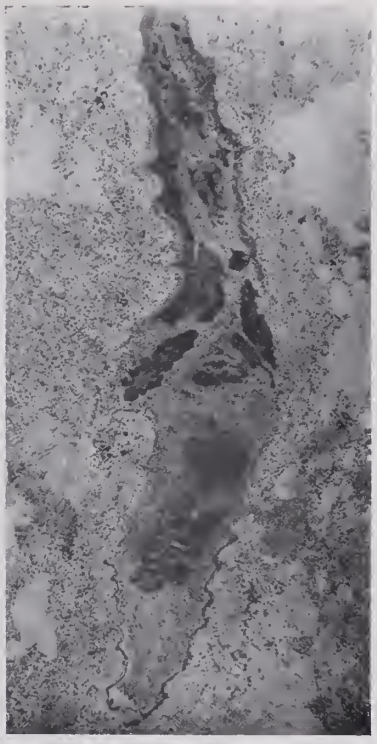


FIG. 11

LEGENDS

Fig. 6 (Case A381784). Gangrenous pneumonia with multiple abscesses involving the middle portion of the lobe.

Fig. 7 (Case A390354). Many small abscesses of the lungs surrounded by pneumonia areas. Many bronchi show dilatation of their lumina and an acute bronchitis.

Fig. 8 (Case A411122). Abscesses throughout the lung tissue with considerable necrosis and breaking down of these areas, and very little reaction in the surrounding parenchyma around these areas.

Fig. 9 (Case A425360). Relatively large abscesses throughout the parenchyma. The remaining lung tissue shows relatively little evidence of pneumonia.

Fig. 10 (Case A411122). Early gangrenous process in midst of small bronchioli. Note homogeneous stimulus cell debris. The epithelium of the bronchioli is still intact.

Fig. 11 (Case A411122). More advanced gangrenous process than Figure 10, extending into adjacent parenchyma.

Fig. 12 (Case A386051). An early stage of gangrenous pneumonia, showing karyolysis of nuclei, and the cytoplasm of the cells merged into a structureless dense mass which takes a light pink eosin stain. Note the small degree of reaction in the adjacent parenchyma.

Fig. 13 (Case A386051). An area of gangrenous pneumonia, showing a more advanced stage of necrosis than Figure 12, with area of autolysis in the midst of process. Note that the parenchyma shows more reaction than in Figure 12.

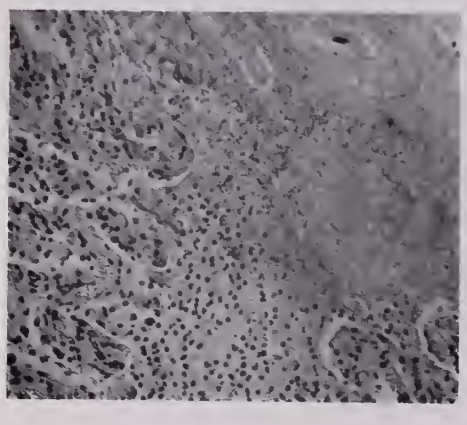


FIG. 12

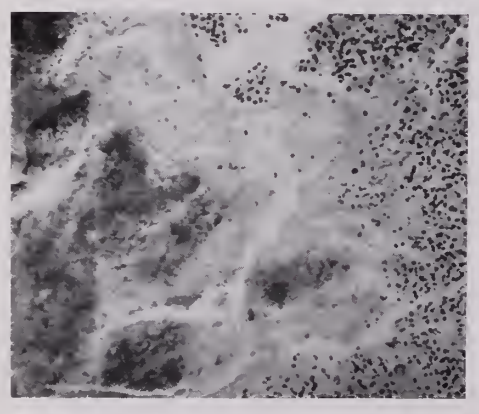


FIG. 13

saprophytes; (2) debilitation or shock has resulted from operation, and there is an inhibition of normal respiratory movements, suppression of normal impulse to cough, or weakness of expulsive power, preventing discharge of mucus from the pharynx; (3) the cardiovascular mechanism is such that the pulmonary circulation is impaired, chronic passive congestion exists and resistance to infection is decreased, or (4) the lungs are the seat of chronic infection.

We have instances of this character, of which one may be cited. Thyroidectomy was performed under local anesthesia and nitrous oxide oxygen. There were superfluous mouth secretions, and audible churning about in the pharynx. The patient was debilitated by disease and by the operation. Cardiac embarrassment, as evidenced by the onset of auricular fibrillation, occurred immediately after operation, and soon after, the lungs, which had long been the seat of chronic bronchitis, became congested, and the patient developed acute bilateral bronchiectasis associated with pneumonitis of gangrenous character. In other instances the mechanism is less clear because no technical mischance occurred, and it must be assumed that aspiration occurred during unconsciousness or semiconsciousness, and that the introduction of putrefactive bacteria set up the condition. In the majority of cases, and almost always when special care is taken to search for them, spirilla and fusiform bacilli are found in the sputum before death, and in the lungs at necropsy. One can expect them when the breath has a foul, sweetish, or musty odor. Buday considers these organisms the specific cause, and sufficient to produce necrosis and putrefaction.

Whether or not bronchoscopic removal should be considered, if the patient's strength is insufficient to raise the secretion, is an open question. It has been suggested by Jackson in other types of disease, but has not been used in the Clinic. The gravity drainage methods have been used, however, but with indifferent results.

MECHANISM OF ASPIRATION

When infective material is carried into the lung it may be in such varying amounts that the mechanism is essentially different. A patient may suddenly drown in his own secretion, or he may aspirate so little that a transient, so-called ether pneumonia, is produced, obviously a different process. Amounts insufficient to fill the bronchial system, however, may be aspirated. It may be sufficient to allow air to enter the bronchioles and distal portions of the lung, but interfere with its egress when the bronchus narrows during expiration. A stasis of secretion results, infection occurs, the lung and the bronchial wall become infected, cough from ex-

cess of secretion develops, but is ineffectual, dilatation of the bronchioles and smaller bronchi occurs, producing acute bronchiectasis and pneumonitis. Thence by extension or aspiration, the greater portion of the lung, especially throughout the lower lobes, becomes involved, putrefaction and necrosis appear, and the whole process advances so rapidly that the myriads of bacteria which fill all the spaces in the lung and destroy the tissue, may kill the patient before the usual signs of inflammatory reaction can be evidenced in the lung.

In this respect, this type of pneumonia differs from the suppurative lesions thoroughly described by Aschner, except that form classified by him as Group 1 of the suppurative pneumonitis cases. These he describes as primarily suppurative, the result of submersion and aspiration. It also differs from the gangrene of the lung described by Norris and Landis, who follow Osler's classification. There is not of necessity in these cases, the mysterious something that produces gangrene, especially among those who suffer from diabetes, or among the insane.

DISCUSSION OF MAYO CLINIC SERIES

In this study of pneumonia of gangrenous type, were included nineteen cases which have been observed clinically since 1921, and in which necropsies had been made. There were eighteen males and one female. It is not expected that this proportion is the one that will always be found, because there seems no reason why the males should be so preponderate.

Age incidence—The age of the patients seems to be of no relative importance. Five were between thirty and forty years, four between forty-one and fifty, five between fifty-one and sixty, and five between sixty-one and seventy.

Primary disease—It seemed important to inquire into the nature of the illness for which this group of patients were treated. From the knowledge that we have of the postoperative pulmonary infections, it would be expected that the majority of them would fall into the group requiring upper abdominal surgery. We were surprised, however, to find the constancy with which the upper abdomen was involved, the lower abdomen being affected in only two cases, although the appendix was removed in five. Carcinoma of the colon occurred once, and femoral hernia once. Of the diseases not definitely related to the abdomen, exophthalmic goiter treated surgically occurred twice, and nephritis was the only serious non-surgical disease.

NON-PULMONARY COMPLICATIONS AS A FACTOR IN PRODUCING GANGRENOUS PNEUMONIA

It is expected that patients of advanced years will have complications probably without symptoms, causing the greatest difficulty in evaluating the surgical risk. In this series, four patients had cardiac hypertrophy, and four had arteriosclerosis. In no instance, however, was operation performed on patients who had definite decompensation, or whose blood pressure was sufficiently high to be a menace. The gall-bladder disease of one patient was complicated by chronic pancreatitis; two patients had advanced nephritis; one, with a surgical disease, developed evidence of nephritis after operation; and the other, with a medical disease, came to the Clinic for the treatment of nephritis. One patient developed paratyphoid dysentery, and an ulcer was found at postmortem examination. These serious lesions are mentioned because they tended to remove the chance of recovery that the patients would otherwise have had, and because they caused debility which seems to be an essential factor in providing a mechanism very similar to that in anesthesia for gangrenous involvement of the lungs.

Weight — The debility brought about by the previous illnesses of the patient may be represented very graphically in this series by the weight loss. Twelve of the nineteen patients were from 9 to 25 per cent

underweight, or an average of 15.5 per cent. The weight had been lost in from one to twelve months; the average period was six and one-half months. Two of the patients had made slight gains in weight within the preceding few weeks; one was 4 per cent, and the other 5 per cent above normal. The only woman represented in the series had always been asthenic, and at operation weighed only 105 pounds. The weight of four patients was not stated.

Blood pressure—The blood pressure is one of the fundamental functions of the body, and if considered with the weight, often gives an idea of the vitality of the patient. Eight patients were found to have blood pressures of approximately 120, three of 130, two of 150, four of 160, and one as high as 190; the blood pressure of one was not stated. Patients with exophthalmic goiter or who were advanced in years had the highest blood pressure. The number of adults with blood pressures averaging below 120 suggests the debility under which many of these patients labored. The lowest blood pressure registered wsa 92 systolic and 62 diastolic; another patient had a systolic pressure of 96 and a diastolic of 60.

Anesthesia—Facts obtained from experimental work on anesthesia have been discussed[18 27] because they represent a possible mechanism by which this type of pulmonary infection might be brought about. It was important to know whether or not the anesthetic in itself could have been responsible for the cases in the series, and a survey was therefore made of the anesthetist's reports, of the type of anesthetic used, and of the length of time that the patient was under anesthesia. It was found that eleven anesthetists with long experience had given the anesthetics. Nine anesthetists gave the anesthetic to only one patient each, and one had given the anesthetic to five patients; at the end of the anesthesia, the report was satisfactory in each instance. One anesthetist had given the anesthetic to four patients and made one definitely unsatisfactory report, and one of the four had a slight degree of cyanosis. Of the nine patients, each anesthetized by a different anesthetist, one did not make a good recovery, but the condition was satisfactory during the anesthesia. There was no report of what happened while the patient was being transferred from the operating room to his bed. Two patients were reported as perspiring, and another vomited a small amount while on the operating table. The condition of all the others was reported as satisfactory. The anesthetist's report covers the amount of mucus, cyanosis, shock, vomiting ,respiration, pulse, and perspiration. If any of these is present, the anesthesia has been reported as unsatisfactory.

Ether was used eleven times, and the average amount was 6.2 oz.; the average time consumed by the operation was forty-eight and one-half minutes.

Novocain and nitrous oxid oxygen was used once over a period of forty-five minutes, and was satisfactory. Novocain and ether was used twice; in the first operation the patient was in a satisfactory condition, and in the second operation, lasting sixty-five minutes, the patient was perspiring, but otherwise the condition was satisfactory.

Novocain and nitrous oxide gas with oxygen was used once over a period of ninety minutes, with a satisfactory report.

Novocain, nitrous oxid oxygen and ether was used on one occasion for an operation lasting fifty minutes.

Novocain and nitrous oxid oxygen with ether was used in one very serious operation that lasted the longest of any in this series. The anesthesia was unsatisfactory inasmuch as the patient vomited on the table, had a slight degree of cyanosis, a pulse of 120, and respiration of 30.

Onset of gangrenous pneumonia.—If all gangrenous pneumonia is due to aspiration at the time of the anes-

thetic, it would be expected that signs should appear very early. In only two instances was the onset of pulmonary disease immediate; one of these has been previously mentioned, in which the anesthetic was given under great difficulty, and the patient had definite vomitus that could be aspirated; in the second instance the patient had had satisfactory anesthesia, but recovery was extremely unsatisfactory; there had been a great deal of mucus that could be heard churning about in the pharynx, causing embarrassment to breathing, and cyanosis. In two instances, the exact time of onset could not be ascertained; in three instances, the recovery from operation was perfectly satisfactory for as long as seven, eight, and fourteen days, respectively. It would not seem that the anesthetic in these cases could have had any bearing on the incidence of gangrenous pneumonia, but that the lack of strength and expulsive power provided for aspiration, and that the mechanism was not different from that appearing in anesthesia, coma or immersion. In the other cases, the onset was on the first day in one, the second day in six, the third day in two, and on the fourth day in two.

Earliest symptoms and signs.— In studying only one or two cases of gangrenous pneumonia, a faulty conception of the symptoms might be obtained, and for this reason the records of all nineteen cases were carefully checked. As a result, a significant clinical picture of the onset of the condition can be quite accurately drawn. There is a rather sudden onset of fever, accelerated pulse and quickened respiration. The patient appears very ill, and usually is sweating and cyanotic. Ordinarily, there is an excessive amount of mucus which can be heard rumbling in the throat; the cough is ineffectual and nonproductive, or productive of only rather small amounts of material. The breath, as a rule, has a foul odor before the odor can be detected in the mucopurulent sputum; however, the foul odor may not appear until later in the disease. The first sputum produced may be frothy and almost entirely mucoid in character. The physical examination of the patient is likely to be disappointing in the early stages, excepting that dyspnea, shock, and cyanosis may be observed. Occasionally pain in the chest will be complained of, while over the posterior lobes of the lungs a slightly decreased resonance with a few fine rales may be obtained. On the day following this primary examination, however, many more signs may be apparent, especially in the rapidly progressing cases. Among these, well developed patches of bronchopneumonia, scattered throughout the bases, have been observed as early as the second day. Usually, however, one is impressed by the fact that the signs obtained on auscultation are those of bronchitis rather than of pneumonia, with marked bubbling rales and a diminished resonance rather than actual dullness. Within the two or three days following the onset of the disease, cyanosis becomes more marked; sweating, drenching in character, frequently appears; restlessness, exhaustion and delirium become manifest, and the dyspnea becomes extremely urgent and may amount to actual respiratory distress, resembling air hunger. Hyperpnea and apnea, in periods succeeding each other, were observed in one instance, while typical Cheyne-Stokes respiration was seen frequently in patients in whom dissolution was imminent. The mucus increases in amount and changes in its character, becoming increasingly foul as its consistency alters from mucopurulent to a thin greenish or yellow, almost essentially purulent material. In two instances only was blood seen either intimately mixed with the sputum, or free. In one instance, the sputum was suddenly raised in such large amounts that a clinical diagnosis of abscess of the lung was made. Such a symptom is rare except in prolonged cases.

The temperature, pulse and respiration are shown in Figures 3, 4 and

5. It is, of course, evident that a serious outcome may be expected when the temperature falls progressively as the pulse rises, and as the respiratory difficulty increases.

On physical examination, in the more prolonged cases, the chest is seen to move rapidly with respiration, vocal fremitus is increased over certain patches, particularly in the posterior portions of the chest, or it may be entirely absent. Vocal resonance is either increased or decreased in much the same way, while percussion reveals areas of dullness that may increase to actual flatness. Dullness is similar to that found in cases of bronchopneumonia, but as time passes, may simulate that of lobar pneumonia in much the same way as do the pseudolobar forms of bronchopneumonia. On auscultation, fine rales are usually found in both sides, becoming crackling or later of coarse bubbling type. The breath sounds are similar in every way to those heard in bronchopneumonia, but occasionally they are very distant, with absent fremitus and distant vocal resonance, giving the impression that fluid is collecting within the chest. This has been, on occasion, a case for a negative finding on aspiration of the chest, and probably is the result of a filling of the bronchus, preventing air from entering that portion of the lung. Both breath and sputum are frequently very foul. The cough is a variable symptom and has been described as persistent, ineffectual, paroxysmal, occasional, continuous, very slight, or absent, and in a very exceptional instance, was so violent as to open the abdominal wound.

LABORATORY EXAMINATIONS

As one would expect in gangrenous pneumonia, there were large numbers of different bacteria, among these being staphylococcus, streptococcus in short chain, Micrococcus catarrhalis, and the pneumococcus. Fusiform bacillus and the spirilla have been found, and represent the more unusual types of bacteria. It is this type that Buday believes is responsible for the production of gangrene.

X-ray findings.—There is very little of significance in the x-ray findings except the presence of a pneumonic infiltration, and frequently of pleuritic thickening, which may simulate the presence of fluid. Evidence of dilatation of the smaller bronchi, and acute bronchiectasis, in association with pneumonia, was apparent on several x-ray plates.

Leukocytes.—The leukocyte count was variable; the highest count was 29,400, and the lowest 2,800. The average leukocyte count, however, was 11,900. A drop in the leukocyte count appeared frequently enough to be significant. In one instance, the count fell from 29,400 to 11,200 on the day preceding death; in another from 19,400 to 9,300, and in a third from 13,000 to 7,000. In only two instances was there a rise in the number of leukocytes immediately preceding the death of the patient.

Examination of the teeth.—The teeth were especially examined in thirteen cases, and in six they were in so satisfactory a condition that no notation was made. In three cases pyorrhea was very advanced, in four it was moderate, in two there were carious teeth, and in one marked gingivitis with diseased roots. We do not believe that the records regarding periapical infection are of sufficient importance in these cases to require a report. Pyorrhea, however, with the presence of pus around the gums, provides for myriads of bacteria, which, mixed with the sputum, add to the danger if aspirated into the lung.

Pathology.—The pathological picture of postoperative gangrenous pneumonia is characteristic in both the gross and microscopic aspects. A most outstanding feature is the very characteristic putrefactive odor that, in cases of extensive involvement of the lungs, permeates the entire room, and renders diagnosis possible without examination of the lung or knowledge of the associated pathologic findings, or the previous history of the patient.

The pleural cavity of patients who have succumbed to gangrenous infection may contain a small amount of turbid fluid, or there may be signs of beginning acute purulent pleuritis. In some instances small subpleural abscesses have ruptured into the pleural space, causing massive infection with advanced purulent pleuritis. There may be light adhesions over the lower lung which are easily broken apart, or dense walling off of true empyema pockets in the patients who have survived for a considerable length of time. The pleura early loses its glistening appearance, and may be covered by an exudate. The process usually is too brief to allow much organization of the exudate.

The involved portion of the lung has an increased density and feels nodular, as in ordinary bronchopneumonia. On cut section of the lung, one notes the putrid, sweet odor typical of gangrenous pneumonia. The trachea and bronchi may contain purulent exudate, and the mucous membrane is bright red in color and edematous, showing the acute bronchitis almost universally present. This condition extends into the finer bronchi. Very often, in more extensive cases and those apparently of long duration, there is a dilatation of the smaller bronchi, a typical bronchiectasis. Some of these bronchi are completely filled with rather dense exudate, which, on manipulation or squeezing, can be easily pressed out. The pneumonic process, as a rule, involves the more dependent portion of the lung and is bilateral; although one portion of the lobe may be involved on one side more than on the other. Only in very extensive and speedily fatal cases are large areas of the lung involved, and in such instances the entire lung may contain small abscesses. The affected portions are gray to grayish brown, and lie around the bronchi. These areas as a rule have circular borders and may show multiple lighter areas in their midst, due to small patches of necrosis throughout the tissue. The pneumonic areas contain small abscesses. They may vary in number in different parts of the same lung, depending on the degree to which the gangrenous process has advanced. They vary in size from a few millimeters to 1 cm. or more; the walls are ragged and irregular, and may be multilocular in form. The intervening lung tissue may show little or no reaction, and may be bright red, due to hemorrhagic edema; exudate may be readily squeezed from this portion of the lung. Should the process be of longer duration, the intervening tissue may be granular and dark red. (Figs. 6, 7, 8 and 9.)

In most cases the trachea and larger bronchi show the typical histologic picture of an acute tracheitis and bronchitis. The cells of the mucous membrane are swollen, and polymorphonuclear leukocytes have invaded the submucosa, which likewise shows an infiltration of serum. The smaller bronchi and bronchioles may be plugged with great numbers of leukocytes. Many bronchi in the midst of the pneumonic area have no distinguishable mucous membrane, but are filled with a homogeneous, deep blue-staining mass of debris surrounded by leukocytes, or the process may be so extensive that one would not be able to recognize the structure as a bronchus, were it not for the adjacent artery, as the walls of the bronchus have been destroyed by necrosis and gangrene. (Figs. 10, 11, 12 and 13.)

The reaction in the parenchyma is typical. One finds varying stages of the disease throughout the lung, from small abscesses made up of great numbers of polymorphonuclear leukocytes, to areas of necrosis of the entire structure of the alveoli and interstitial tissue, the latter simply remaining as a skeleton without noticeable living nuclei. An advanced stage is the more common finding of fairly large necrotic areas having in their center a mass of structureless debris, the gangrenous lung tissue, which takes a deep blue basic stain with hematoxylin and eosin-stained

sections. These gangrenous areas are often seen to be in close proximity to a small bronchus, and in some sections seem to spread from the bronchus. (Figs. 10 and 11.)

The most characteristic microscopic picture and one which distinguishes gangrenous pneumonia from ordinary postoperative bronchopneumonia is the areas of gangrenous abscesses in the midst of lung tissue which usually shows little reaction. This unaffected lung tissue is in striking comparison to the extensive necrosis, resembling a consuming, destroying inflammation. So virulent does this process appear, and so sharp is the distinction between the affected and nonaffected lung tissue, that one may conceive it to have been caused by some strong reagent which acts speedily over a localized area and causes quick local destruction of tissue. The gangrenous areas have in their center the homogeneous sructures, deep blue-staining tissue, the tissue debris. Surrounding this is an area of necrosis, the structure of the alveoli, blood vessels, and so forth, remaining as a skeleton without visible living nuclei. This zone may be surrounded by a few polymorphonuclear leukocytes, lymphocytes and serum, which fill the adjacent alveoli. Farther from this area and in the remaining alveoli, there may be a collection of serum with a few red blood cells; it is the rule that the demarcation be clean cut and distinct between gangrenous areas and intervening parenchyma. However, the adjacent tissue may show evidence of more advanced exudate with a variable number of leukocytes, in proportion to serum. (Figs. 12 and 13.)

It seems probable that the process has extended by way of the bronchi, since the gangrenous areas are usually in the neighborhood of the bronchi, since necrosis is so often found directly in their lumina, and since the trachea and larger bronchi show the evidence of a very acute bronchitis.

In some instances, food (gastric contents) has been found in the bronchi. The microscopic search for foreign material in the stained sections has not been satisfactory. In no instance were we able to distinguish vegetable or meat fibres. This is to be expected, however, because the process is so extensive, so rapid, and necrosis develops so early that recognition would be almost impossible.

Laboratory studies, when made, reveal large numbers of putrefactive bacteria which can be easily identified by ordinary smear. The fusiform bacilli and spirilla predominate.

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DISCUSSION

DR. C. C. DAVIS, Albuquerque, N. M. (Opening discussion): I have listened with great interest to Dr. Lemon's paper and think we are singularly fortunate in having a man of his experience and knowledge with us. I feel that the field has been covered so thoroughly that anything I might say would neither add to nor detract from the paper the doctor has read.

One or two questions came to my mind and I think if we can carry away with us a satisfactory interpretation, it will be a great help to the men in the Southwest, dealing to a great extent with pulmonary conditions. It seems from the paper that the principal thing in the aspiration pneumonia of the gangrenous type is the prevention of this complication, and the doctor covered that very thoroughly, telling us just how that could be done and thus avoid the complication. The question of anesthesia occurred to me, and I wonder what his opinion is in regard to that in pulmonary diseases. I noticed some of the cases developed very late. It would seem there was not a very great amount of irritation from ether anesthesia immediately following the operation, but I wonder if in some of these late cases it was not due to a delayed reaction and thus the gangrenous type developed later.

In the Southwest we have a great deal to do with surgery in complicating pulmonary conditions and we have had to sacrifice ether anesthesia to a great extent because it seems that, although ether does not apparently affect the lungs at the time, still, later on, we get a great spread of the tuberculous condition in the chest, which is avoided by using a combination of local anesthesia with twilight sleep. I should like to have Dr. Lemon's opinion in the use of twilight sleep with morphine and subsequent local anesthesia. We apparently get very good results with our surgery as far as lung complications are concerned, and seldom get any extension of the tuberculous condition of the chest by the above method.

DR. A. M. FORSTER (Colorado Springs, Colo.): I feel that Dr. Lemon ought to be congratulated on the wonderful detail with which his subject has been prepared. There is one particular point which I feel is of special note in this paper, and that is the demonstration of the sympathetic co-operation between the internist and the surgeon. I wish to mention two cases I happened to recall as Dr. Lemon was reading his paper.

One was a case of obstruction of the esophagus, and we saw very clearly under the x-ray when the patient attempted to swallow barium, that it went down into the esophagus, met the obstruction and returned, flowing over into the larynx and trachea. The patient had had this condition for a number of years and was doing the same thing with his food, afterwards coughing it up from the trachea and bronchi.

The other was a case of empyema, and by injecting barium into the pleural cavity you could see through the fluoroscope the barium pass into a bronchial fistula and then into the trachea, up to the larynx and down the esophagus without producing any conscious symptoms.

DR. K. D. LYNCH (El Paso, Texas): I think this paper needs a good deal more discussion than those which fol-

low it. I am actually interested from the standpoint of the surgeon. I believe that the majority of cases at the Clinic are given ether anesthesia and I think in a way, from listening to Dr. Lemon read his paper, that he has come to the conclusion that it is not so much the character of the anesthesia that has to do with this type of pneumonia. I have followed the methods at the Clinic for a good many years and have operated upon a considerable number of tuberculous kidneys in the Southwest and have given every one of these cases ether anesthesia, whether with active tuberculosis, or arrested tuberculosis. We have had no difficulty whatever in sixty-two cases operated upon for tuberculosis of the kidney with ether anesthesia. The sixty-third case was one that demanded nitrous oxid anesthesia. He was under Dr. Homan's care and developed very rapidly progressive tuberculosis and died.

I use a great deal of spinal anesthesia and have had one case followed by pneumonia. The case got well—apparently of the embolic type.

We are all doubtful as to what does cause these postoperative pneumonias and have not had the chance to follow these cases up. It has been a great treat to listen to this paper and find out that in a great number of the cases some at least will be considered aspiration pneumonias.

We have had four other cases of apparently an embolic type in operations done in the lower portion of the body, where the actual aspiration from the throat did not enter into the question."

DR. W. S. LEMON, Rochester, Minn. (closing discussion): In reply to a question, I will make this statement. A great many splendid surgeons have given inhalation anesthesia (using ether) to tuberculous patients. I do not advise the use of ether in such cases unless it is very necessary. Tuberculosis is a chronic pulmonary infection, and one avoids inhalation anesthesia in the presence of all chronic pulmonary diseases whenever possible, in order to prevent a recurrence of the disease which in tuberculosis may stimulate activity in the lesion, and in chronic bronchitis or bronchietasis may stimulate acute infection and bronchopneumonia, a complication that is not unusual and is similar to that following the use of ether anesthesia in cases of acute bronchitis, coryza, pharyngitis or other acute infection of the respiratory tract.

Regarding the aspiration phenomenon mentioned by Dr. Forster, it becomes necessary to emphasize the protective mechanism of the lung rather than its vulnerability, as I have done. Undoubtedly many instances of fairly gross aspiration occur, but the healthy lung with a normal cough-reflex rids itself of its foreign material quite promptly, and no serious complication results.

THE AMBULATORY TREATMENT OF PEPTIC ULCER*

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The methods of treatment of peptic ulcer have varied from time to time in the hands of various schools of clinicians. The procedures advocated by such eminent men as Leube, Lenharz, Sippy, Mayo and Moynihan, with which all are familiar, emphasize the diversity of teaching in the care of this disease. All of these divergent methods have yielded excellent results in the hands of their respective advocates. Sir Berkeley Moynihan, in discussing the medical treatment in his recent article, "Diagnosis and Treatment of Chronic Gastric Ulcer," states: "A really serious attempt to treat all cases of chronic gastric ulcer by medical treatment should be made." In reviewing the various methods of medical treatment he concludes that, "The most rational of all methods is that introduced by Sippy which would appear to meet more combatantly those conditions in the stomach which we believe must be controlled before an ulcer can have a chance to heal."

It is quite evident from a careful review of the literature that the strong tide of opinion in favor of surgery in all cases of ulcer is rapidly subsiding and that careful medical management should precede operative interference in the vast majority of cases.

Gastro-enterologists are constantly coming in contact with patients having had gastro-enterostomy, pyloroplasty, pylorectomy, excision of the ulcer and so forth, who have had a return of their previous symptoms,

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even though the surgery was performed by most excellent men. In fact, it would seem quite unreasonable to assume that even though one ulcer was completely cured another could not occur. Such must frequently be the case.

The decision as to what method should be utilized in the treatment of any case must depend upon a most careful study of the case. Such study should consist of a carefully taken history, thorough physical examination, Wassermann test, complete blood count, urine examination, fractional test meal, numerous stool examinations and a thorough x-ray study of the kidneys, gall-bladder and gastro-intestinal tract. Attention should be directed in all cases toward the localization and eradication of possible foci of infections.

From the study of large series of peptic ulcer patients the methods of treatment may be briefly classified as follows:

I. Surgical.
   - A. Perforating ulcers.
     - (1) Complete.
     - (2) Incomplete.
   - B. Obstructing ulcers.
   - C. Chronic indurating ulcers.
   - D. Ulcers with recurring hemorrhages.

II. Medical. (All cases not included under surgical.)
   - A. Rest-in-bed cases.
     - (1) Hemorrhaging ulcers.
     - (2) Marked pylorospasm with gastric retention.
     - (3) General debility.
     - (4) Expediency.
   - B. Ambulatory cases.
     - (1) All cases not included above.

After a thorough study as outlined above it is quite easy to select from this simple classification the method of treatment which would yield the most favorable prognosis.

A review of our last one hundred private patients demonstrated to have peptic ulcer by examination, operation or results of medical treatment, showed the relative proportion of methods of treatments employed to be as follows:

1. Surgical Cases: Five.
   - A. Perforating: Three.
     - (1) Complete: None.
     - (2) Incomplete: Three.
   - B. Obstructing: One.
   - C. Chronic Indurating: None.
   - D. Massive, recurring, hemorrhages: One.

II. Medical: Ninety-five.
   - A. Rest-in-bed: Six.
   - B. Ambulatory: Eighty-nine.

From this table it is evident that the vast percentage of peptic ulcers occurring in private practice can be successfully treated by the ambulatory method.

The success of the ambulatory method is dependent upon certain factors, namely:

1. Absolute co-operation of the patient. Individuals presenting themselves for treatment in private practice are usually delighted to know that they can be relieved of their distress and pain and be cured without the necessity of going to bed or giving up their work. They are usually sufficiently intelligent to carry out all orders if given careful explanation and instruction as to the cause of their symptoms, the manner by which the symptoms may be relieved and the necessity for the utmost promptness and diligence in complying with every detail of the treatment. The explanation should be given with great care and the directions carefully written. The patient should be seen daily until all symptoms are completely relieved and then less frequently as seems advisable. The patient should be encouraged to report immediately any unusual manifestation.

2. The treatment should continue over a long period of time. This is possible only if the patient understands that relief of symptoms does not mean a cure. A firm cicatrix means months of freedom from all irritation.

3. Instruction should be given as to the early symptoms of reappearance of the ulcer. The onset of any indigestion, gastric distress, belching or heaviness should be considered a warning and if properly managed will quickly disappear, while if allowed to continue will result in the reappearance of pain and the breaking down of the old ulcer or the beginning of a new one.

Patients who have had recurring attacks of ulcer admit that the early symptoms of the reappearing ulcer were neglected. Doubtless numerous reappearing ulcers and post-operative recurrences could have been avoided if the patients were properly advised and educated in this respect.

The ambulatory method of treatment, like all other forms of treatment, is based on certain principles.

1. An ulcerated surface is present.
2. The ulcerated surface must not be irritated.
3. Hydrochloric acid, being an irritant, must be neutralized.
4. Stomach should not become distended.
5. The patient must receive sufficient food value.
6. There should be sufficient bowel elimination.

A detailed explanation of each of these principles to the patient is essential in securing his co-operation.

Two types of diet have been utilized: (1) Milk and cream. (2) Non-stimulating soft foods. Eighty-six (91%) of the ninety-five cases treated medically in the above group of cases were managed on milk and cream alone. Nine per cent were fed on non-stimulating soft foods.

Milk and cream in proportion of two parts of whole milk and one part of cream has seemed to be an ideal combination. The milk and cream is non-irritating, non-stimulating, has high caloric food value and undoubtedly controls the excess acidity to a considerable degree. The combination of milk and cream is given at two-hour intervals eight times a day. The size of each feeding at the onset of this diet is determined by the emptying time of the stomach as observed by the fractional test meal and the x-ray examination. If the stomach, during the laboratory study, emptied within three or four hours, it is safe to allow six ounces of the milk and cream mixture at each feeding on the first day. If there is no sensation of fullness at the end of that day eight ounces may be given the following day. If there is evidence of pylorospasm smaller quantities are given at the onset in addition to therapeutic doses of atropine or tincture of belladonna. The quantity of milk and cream is gradually increased until the patient experiences no hunger sensation or emptiness and still is not sufficient to produce fullness or distress in the late afternoon. Many patients are able to take from ten to twelve ounces at each feeding. The average sized patient will lose very little weight on the eight-ounce feedings, and will gain when taking ten to twelve ounces. On this quantity of food there is no complaint of weakness or hunger even at the onset of the treatment.

The excess acidity is further controlled by the use of sodium bicarbonate, magnesia and bismuth in various combinations. The amount of alkali needed is determined by the results of the fractional test meal, the relief of symptoms and the amount of acid present in the stomach at the end of the day. In most instances it is unnecessary to do evening lavage in order to know that the acidity is controlled and that the stomach is emptying properly, as the patient's freedom from distress is a good index.

Magnesium oxide is added to the powder combination in quantities sufficient to regulate the bowel move-

ments. Patients taking ten to twelve ounces of milk and cream should have two to three soft formed stools daily.

The powders are prepared in bulk, patient taking one teaspoonful, or less as needed, from one-half hour to one hour after each feeding. The powder should be repeated as often as necessary to prevent any gastric distress. By individualizing the amount of alkali given each patient there should be no occasion or fear of alkalosis. The fractional test meal gives guiding information in this regard.

The patients remain on the milk and cream diet for four to six weeks and at the end of this period, in many instances patients would rather continue on milk and cream than eat other foods. They are slowly given non-stimulating, soft foods such as well-cooked cereals, rice, soft eggs, baked potatoes, very tender or pureed peas, finely chopped spinach, baked or broiled chicken, broiled lamb chops or filet steak, custards, plain ice-cream, apple sauce, baked apple, puree of prunes, dry toast or stale bread. Three small meals selected from this list of foods are allowed and, in addition, milk and cream with each meal, midway between each meal and on retiring. The powder is given at regular intervals after each feeding and gradually decreased in amount.

The patient should continue on a bland sort of diet for several months and abstain from overeating, all forms of stimulating foods, condiments and alcohol.

The remaining nine cases, or nine per cent, were given practically the same foods as those coming off the milk diet. They were placed on the soft, non-stimulating foods because of their aversion to milk and cream.

Their management was less satisfactory. It is difficult to carry soft foods to work and take them at intervals of every two or three hours. The milk and cream is readily carried in a thermos bottle and requires very little time and causes little inconvenience.

The ambulatory treatment of peptic ulcer can be successfully conducted in the vast majority of private patients. It is needless to state that the economic factor is tremendous. Patients requiring hospitalization not only pay large hospital bills but lose their income.

CONCLUSIONS

I. The majority of private patients with peptic ulcer can be treated successfully by the ambulatory method.

II. Milk and cream in proper combination is an ideal diet for this form of treatment.

III. Economically the ambulatory method is highly desirable.

DISCUSSION

DR. W. H. WOOLSTON, Albuquerque, N. M. (opening): It has been a plesaure to review Dr. Fishbaugh's paper. The Society is to be congratulated on having him here. It is a rational method of medical treatment in the majority of acute cases. It does away with hospitalization, which means a great deal to the patient economically. However, though I can subscribe to almost everything Dr. Fishbaugh has said, our point of view may be slightly different in respect to the chronic peptic ulcer, since my training and experience have been largely surgical.

In the history of peptic ulcer, the periods of excerbations and improvements are characteristic and it has been shown at autopsy that a certain number have healed without treatment; therefore, we must be circumspect in concluding that medical treatment alone has been the factor in relieving symptoms. However, careful medical treatment usually results in great or permanent improvement. Successful management under a strict Sippy regime requires several weeks' hospitalization and a prolonged dietary regimen afterwards, which is out of question for a great majority. That is why Dr. Fishbaugh's method should be an improvement on the Sippy treatment if it will fit enough cases. Surgical treatment results satisfactorily in 90 percent of duodenal and 80 percent of gastric ulcers after operation. The common types of operation are the Billroth I-II, Polya, Finney pyloroplasty, Horsley operation, excision, gastro-enterostomy with pyloric occlusion. The operation must be fitted to the patient rather than the patient to the operation. Gastro enterostomy has fallen into ill repute largely due to its abuse and indiscriminate use. We have found that the Polya operation has a larger field of usefulness than most of the other methods.

The acute simple ulcer is infected superficially and can be cured by medical means,

but the chronic is infected through the deeper layers of the stomach or duodenum and cannot be reached by medical therapy. The ulcer surface heals and leaves an indurated, infected area, so we have recurrences in spite of a strict diet. The only cure is the removal of this area when possible. The difficulty is that they are subjected to repeated medical cures, so that when the surgeon gets them, a certain percentage have perforating ulcers, adhesions, etc., which make a resection out of the question.

Average mortality of acute and chronic ulcers surgically treated, from all causes, is 2 percent in duodenal (which rarely become malignant) and 3.5 percent gastric (which often become malignant). Finsterer's mortality in 407 cases was 4.4 percent; in the last three years 1.8 percent.

Chronic ulcer tissues lose the power of repair, apparently. There is a rim of dense scar tissue around the ulcer and in its crater. A close parallel is the varicose ulcer. There is repeated healing and recurrence as long as we leave the pathology, focus of lowered resistance in the scar, and the etiological factor is still present.

Hyperacidity is described as one of classical signs of peptic ulcer and therefore should be reduced by alkaline treatment and a non-irritating diet. But if one accepts the judgment of A. J. Carlson, Professor of Physiology at the University of Chicago, there is no disease known capable of producing a true hyperacidity, and the pathologic deviation in acid and pepsin is invariably in the direction of decrease and at best we have a hypersecretion caused by hyperactivity of the acid cells about the antrum. It has been further established in gastric and duodenal ulcer unaccompanied by pyloric obstruction that there may be normal acidity (10 percent of cases) or a complete achylia. So the indiscriminate use of alkalis and the non-irritating diet of modern medicine cannot be rational in this group of cases which cannot be distinguished clinically from the rest. Alkalosis occasionally results from its use. We can't turn the patient loose on alkalis, therefore frequent visits to the doctor and frequent stomach analyses are necessary.

The internists who claim a cure of 95 percent of all ulcers are very optimistic. They should have the opportunity of operating on some of the cases the surgeon gets who have had repeated cures, and especially the 5 percent they grant the surgeon. Perforating or penetrating ulcers adherent to the head of the pancreas or gallbladder or surrounded by adhesions, hemorrhaging ulcers in which the patient is a fine risk, or the gastric ulcer which has become malignant.

It is surprising the mortality is not higher. I do not mean by this that all ulcers should be treated surgically, but I think more of them should be given the benefit of surgical treatment sooner and not procrastinate with a chronic ulcer which is a surgical condition. All acute cases should be treated medically; preliminary and postoperative medical treatment until the altered physiology has become adjusted, which it quickly does, are of great importance to the surgical treatment. The salvation of the internist, if he wants 100 percent of the peptic ulcers, is to diagnose them early, and by the accurate methods Dr. Fishbaugh has described and the x-ray, which is accurate in 95 percent of cases, this is quite possible.

From what I have said, you can see that I am surgically inclined, but I do not want you to feel that I am criticising Dr. Fishbaugh's paper at all; I am simply taking this opportunity to present the surgical treatment in a brief and very incomplete manner.

DR. R. O. BROWN (Santa Fe, N. M.): There is one thing I want to say in regard to Dr. Woolston's contention as to the frequency of new ulcers and the recurrence of old ulcers. I happen to have a close knowledge of one case where an old ulcer was healed apparently and a new ulcer developed and the condition following it was the cause of death. It happened about a year ago. The patient had a very severe intestinal hemorrhage, which was the first thing that warned him there was anything radically wrong. He had had indigestion for over a year and a half and had been treated by a doctor who had not investigated very thoroughly, but had told him he "had a little indigestion", to "modify his diet," etc. He passed at one time several quarts of fluid blood, following a period of about a week, during which he noticed his stools were dark in color. He was taken to the hospital immediately and a diagnosis of duodenal ulcer made on clinical findings and x-ray. He was placed on a diet and kept in bed for about a month and a half and then allowed to be up and around a little. He was very weak, 76 years of age, but the distress left him, and he was all right until about the beginning of November. We had more x-rays taken then which showed the outline and shadow of the duodenum just about as they were before. There had been practically no symptoms. On the 8th of November he had another hemorrhage, passing at least one pint of fluid blood by rectum, following three days of slight distress. He was again placed on a soft diet. There was continual bleeding from the time of the second hemorrhage right straight along until he was placed on a Sippy diet, with alkalis and neutralizing powders of soda bicarbonate and calcium carbonate. After a week of this treatment, bleeding apparently stopped. Chemically, there was no trace of blood in the bowel movements. The kidneys, however, were not in very good shape. While alkalosis was not shown by blood chemistry, the blood alkalinity was reduced below normal, though within the boundary of safety. There was, however, increased blood urea found. He gradually developed uremia and died. Postmortem showed old healed duodenal ulcer;

about one and a half inches from it, higher up in the duodenum, was a recent ulcer, about three-quarters of an inch in diameter, which was not at that time bleeding, but was healing over. Injection of methylene blue solution did not show any leakage at all from the vessels in the ulcer, but there seemed to be no question at the postmortem but that the old ulcer had been healed over to the extent where it was causing no trouble and the small and new ulcer was the one that was giving the trouble. There was no evidence of focal infection anywhere else in the body, and why the ulcer should occur was not very clearly brought out. Only one thing pointed to the trouble, and that was perhaps the spleen. Blood pressure had not been over 140 at numerous examinations during the last fifteen years, but in spite of that fact, there were found markedly contracted kidneys, and marked arteriosclerosis —the kidney lesions being apparently the cause of death.

DR. E. C. FISHBAUGH (closing discussion): I wish to thank the Society for the invitation to be present at the state meeting; I have enjoyed being with you very much and appreciate greatly your courtesy.

As far as the surgical treatment of ulcer is concerned, we all realize that there are a great many surgical cases, and we also realize that medical treatment does not cure all cases by any means, but neither does surgical treatment.

Last year we saw two ulcer cases that were enormous in size. One of these gastric ulcers was operated upon and found to be two inches in diameter. This man had been operated upon four years previously, and about two months later the ulcer recurred. At the second operation it seemed practically impossible to do anything because of the numerous adhesions, and because of the size of the ulcer, so the surgeon cauterized the ulcer. The man had been completely free of symptoms for three weeks, was on a regular postoperative diet, when suddenly he had a sharp pain in the abdomen, followed by hemorrhages. He again came into my hands. Under medical management, the ulcer healed and he has been entirely free from all symptoms for eight months.

The other case was a man who died from hemorrhage and on autopsy an ulcer was found which was four inches in length, one and one-half inches in width. Of course, such an ulcer could only be treated by cauterization and not by removal.

CASE REPORTS OF CERTAIN DISEASES SIMULATING TUBERCULOSIS*

A. M. FORSTER, M. D., and T. J. KINSELLA, M. D., Cragmoor, Colorado Springs, Colo.

Our idea in presenting this paper is to illustrate with a few brief case reports some of the diagnostic problems which present themselves in an institution devoted almost entirely to the handling of tuberculosis. These cases were either sent to us with the diagnosis of tuberculosis or with the failure to recognize complications which were very important from the point of view of treatment. We feel that such problems often face the general practitioner and that it is always timely to attempt to throw some light on the question of differential diagnosis.

Since the World War we have all recognized the importance of non-tuberculous lung infection as a cause of chronic illness, and we have learned to be careful not to call every chronic lung infection tuberculosis. This is particularly necessary because so often the non-tuberculous lung infections follow some focal infection of the upper respiratory tract, and, unless this focal infection is properly cared for, there is little hope of cure of the lung condition itself. In fact, we feel very strongly that it is particularly necessary, whether in tuberculosis or other conditions, to make a thorough investigation of the upper as well as the lower respiratory tract.

Case one is not presented because of any unusual features, but simply because it is typical of the type above mentioned. The patient was considered to have chronic pulmonary tuberculosis of long standing. However, repeated sputum examinations failed to reveal any tubercle bacilli and the x-ray disclosed sinusitis. With the clearing up of the sinus condition and the institution of postural drainage, we hope to be able to return this patient to active life. An interesting point is that in spite of the long standing chronic lung infection this patient has no definite clubbing

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of the fingers.

Case two illustrates the importance of the most careful search to determine the exact etiology of a non-tuberculous lung infection. This patient had been diagnosed as tuberculous, but, on account of the fact that the organisms found in his sputum were atypical and also on account of atypical physical signs and symptoms, we questioned the diagnosis. We made a most careful cultural study of his sputum and finally proved a streptothrix infection. We found the fungus in his sinus discharge as well as his sputum. Operation on the sinus, postural drainage, bronchoscopy and iodid medication and a number of small doses of neosalvarsan finally got the aptient in such condition that he was able to return to a fairly active life.

The mistaken diagnosis in case three has no influence on the patient's outlook, but it was of some importance that the diagnosis was cleared up. This case had physical signs of an old fibroid tuberculosis in the upper right lobe. However, the sputum was negative, although it constantly contained a small amount of blood. In the lower left lobe there was an area of dullness with distant breathing and a few creaks and clicks. The x-ray showed a very sharply defined triangular shadow with its base at the hilum. We made a tentative diagnosis of malignancy which was confirmed later when the patient expectorated a small mass of tissue which showed carcinoma. Autopsy demonstrated the old apparently healed tuberculosis and the carcinoma. The patient also had carcinoma of the pylorus. An interesting point was that for several months following his arrival at the sanatorium he gained weight and improved in every way. It was not until about two months before his death that he developed any abdominal symptoms. Naturally the inference would be that the pyloric cancer was primary, but it is curious that for a long time all the symptoms were referable to the lung condition. The patient ran a constant low grade temperature which was in no way different from that often seen in tuberculosis.

Case four is presented to illustrate the great difficulty in differential diagnosis of tuberculous enteritis. This patient has typical physical signs of moderately advanced pulmonary tuberculosis. While her sputum was negative, we could not discover any other explanation for her lung condition and we feel positive that she had the pulmonary tuberculosis. During the seven months she was under our care she had persistent diarrhea with marked anorexia and frequent vomiting. There was some tendency to localize the pain in the right lower quadrant, although there was considerable general pain and tenderness. It was possible to palpate a small mass in the right lower quadrant and there was a fairly constant gurgle present. The patient was very difficult to handle and the abdominal symptoms failed to show any improvement with the usual dietary and medicinal treatment for tuberculous enteritis. Her stools were negative for parasites or dysentery bacilli and tubercle bacilli. However, they showed pus cells, red blood cells and some mucus. Sidmoidoscopic examination showed only an irritated mucosa with no ulceration or bleeding. The x-ray revealed hyperperistlsis of the small intestine, but the patient was unable to retain a barium enema and consequently we could not study the large bowel. The blood picture showed 10,600 white cells with 66 percent PMN. We finally recommended an exploratory operation and the patient returned to her local surgeon, who is reported to have found a subacute appendix with no abscess formation and with no macroscopic evidence of tuberculosis. In the last report the patient had gained 34 pounds and was free from digestive symptoms.

Case five we consider most unique and well worth adding to the literature. Laryngologists tell us that differential diagnosis in their sphere is largely confined to the triology of

syphilis, tuberculosis and malignancy, and we know that it is often extremely difficult from the local examination alone to settle the question. This patient was sent to us with a diagnosis of pulmonary and laryngeal tuberculosis. The physical signs in the chest showed very extensive involvement of the right upper and middle lobes and the entire left lung. There was marked dullness in this area with broncho-vesicular breathing, but very few rales. The larynx showed extensive ulceration of the epiglottis with infiltration below. The sputum was negative for tubercle bacilli. The patient was desperately ill and after several weeks on account of extreme dyspnea, it was necessary to do a tracheotomy. We did not make a positive diagnosis before death, but our feeling was that we were dealing with malignancy both in the larynx and the lung. The autopsy report is most remarkable. The lesion in the larynx showed an infiltrated carcinoma of squamous cell type. There was no cancer in the lung, but as indicated by the physical signs, very extensive tuberculosis. A lymph node taken from the right side of the trachea showed carcinoma and one from the left side on the same level showed tuberculosis.

Case six had very definite and extensive tuberculosis, but we present it because of the complicating malaria which is so frequently masked by the tuberculous symptoms. We have learned to search most diligently for malaria in all our patients from the south. Some few months ago we found the plasmodium in a patient from Wisconsin who had never been in the south. In the case under consideration there was nothing about the symptoms to indicate the malarial complication. This patient has periodic attacks simulating renal colic and her urine on these occasions had much pus. Cystoscopy demonstrated pyelitis on the left side and the urine from the kidney was positive for tubercle bacilli. This case, in addition to the pulmonary tuberculosis, had the following complications: Tuberculous laryngitis, tuberculous kidney, malaria, and pyelitis.

In case seven we are hardly prepared to give a positive diagnosis. This case was sent to us with a diagnosis of pulmonary tuberculosis and in our opinion the physical signs were sufficient to make us feel very strongly that the diagnosis was correct. There was practically no sputum at any time while the patient was under our observation and the small mucoid specimens which the patient was able to give us were constantly negative for tubercle bacilli. The complicating condition which we report apparently developed after the patient had been under treatment for some time. The following chart of blood findings is extremely interesting:

Date	R.B.C.	W.B.C.	Hbg.	S.M.	L.M.	Neut.	Eosin	Basop	Trans	Myelo	
8-19-23		11,000	90	40	2	54	1	2	1		
9-28-23	4,350,000	26,800	100	83	2	10	1	0	0	4	
10-1-23		17,250		88	0	9	0	1	1	1	Normoblasts 0
10-8-23		11,500		77	2	17	1	1	2		Oxydase stain
10-18-23		11,300		48	1	45	2	0	4		shows large
10-31-23		7,400	95	60	0	36	3	0	0	1	lymphocytes
11-9-23		12,759		50	2	43	2	0	1	2	not to contain
1-10-24		7,000		48							oxydase.

The patient ran a slight low grade temperature, was very nervous and restless and had general enlargement and tenderness of the surface lymph glands; she also had a recurrent slight epistaxis. During the period of most marked enlargement of the lymph glands the temperature went as high as 100.5 degrees. A recent report after seven months indicates the disappearance of all signs and symptoms.

We have only one excuse for pre-

senting case eight and that is because occurring in a nurse handling tuberculous cases, the inference drawn by our patients was that she had developed a tuberculous meningitis. Needless to say this case was extremely interesting to us because recovery occurred. A few days before the onset of her illness she noticed that she had a small pimple just within the opening of the left nostril. This gradually developed in size with slight shooting pains through the left temporal region toward the occiput. About noon one day she suddenly developed excruciating pains in the back of her head and neck and down the spine. For five days spinal puncture revealed a bloody fluid which was under some pressure. The blood gradually cleared up, but the symptoms of meningitis increased. In all the patient had seven spinal punctures. This, with the use of opium derivaties and anti-streptococcus serum, constituted the treatment. Careful laboratory investigation proved that the infection in the nose, as well as in the meninges, was a streptococcus.

DISCUSSION

DR. W. A. GEKLER, Albuquerque, N. M. (opening discussion): Dr. Forster's paper again emphasizes the fact that tuberculosis cannot be divorced from internal medicine and that the work of the so called tuberculosis or chest specialist must always be intensive internal medicine. We are all seeing cases which simulate tuberculosis with enough frequency to keep us on the alert for these conditions. I have seen in my public institutional work a great variety of conditions diagnosed tuberculosis; for instance, diabetes, nephritis, pernicious anemia, acute leukemia, carcinomatous metastases.

Among unusual pulmonary infections I have seen one case of infection with a yeast fungus which gave history and physical findings not to be distinguished from tuberculosis. The autopsy, however, revealed the true situation.

I have always been very much interested in malignancy combined with tuberculosis for the very good reason that I have never seen a case in which the two diseases coexisted. The finding of these two conditions in the respiratory tract is certainly most unusual and deserves a separate report in itself.

All of us doing tuberculosis work in this section of the country have constantly to be on the watch for malaria as a complication, for we all get patients from the south, where malaria is more or less prevalent. It is interesting to note that in a study made by the Public Health Service it was found that sleeping cars that have passed through the south might harbor malaria bearing mosquitoes and an individual coming into that car might acquire malaria without ever having been in a malarial district. I have had three cases of empyema complicated by malaria and they have all done badly.

Malignancy of the lung is a condition which we all occasionally see and in my experience these pulmonary malignancies, especially the primary ones, are apt to run a very atypical course. Sometimes they are very slow and give a history of two or three years of poor health, while other cases advance very rapidly. I do not remember a single case that did not run a low grade temperature and have a number of other symptoms quite suggestive of tuberculosis.

In the matter of treatment of tuberculous enteritis, men in this section of the country have taken the lead and are several years ahead of other sections. In public institutional work in the middle west it is usually impossible to do anything with intestinal tuberculosis because the patient's pulmonary condition progresses so rapidly that any form of treatment would be foredoomed to failure. In this part of the country, where pulmonary cases have a greater expectancy of life, the matter of the diagnosis of tuberculous enteritis is of considerable importance because we are able to help many of these patients when the diagnosis is made early. I do not believe that there is any one group of symptoms, signs or findings, upon which a physician can always rely as being typical of tuberculous enteritis. A patient with an open pulmonary lesion will always show tubercle bacilli in the feces if the search is intensive enough. On the other hand, however, they are never present in the same numbers as one finds in tuberculous enteritis. I know this is a rather crude rule to follow, but it has been the only one that has been fairly satisfactory to us. It is our custom to put any patient in whom we suspect tuberculous enteritis on heliotherapy at once.

In conclusion, I feel that a paper such as Dr. Forster has read should occupy a place on every program where tuberculosis receives any discussion at all. There are none of us who do not continually need to be stimulated to more careful work by reports of this nature. I would like to again emphasize that statement that I made in the beginning—that the practice of tuberculosis means simply intensive work in internal medicine.

DR. ORVILLE EGBERT (El Paso, Texas): Dr. Forster's paper is exceedingly timely before a body of this sort, regardless of whether or not we are internists. Men of the west, general practitioners and specialists are above the average as physical diagnosticians. Certainly on such an important subject it is pertinent that all points of differential diagnosis should be brought out.

As Dr. Gekler has said, there is no such thing as a chest man. I would go a little further and say there is no such thing as a specialist in tuberculosis; rather that he is an internist and, above all, a diagnostician.

But I rather doubt the advisability of emphasizing to the general practitioner back in the old states an occasional misdiagnosis of tuberculosis. It takes a good deal of moral courage in Mississippi and Pennsylvania to make a diagnosis of tuberculosis. A great many of those men learned considerable about physical diagnosis in the war and they send us now a much higher percentage of cases with tentative diagnosis of tuberculosis. I think they should not be discouraged in so doing. It is up to us to ferret out these rare cases. The man back there is up against it hard; he needs our support; his work as a general practitioner is to do the greatest good for the greatest number, and although he may occasionally do an individual the injustice of ranking him tuberculous when he is not, that is reparable. But it would be deplorable for us in any way to contribute anything that would cause the rank and file of the profession to take less seriously the crying need of early diagnosis of tuberculosis. So I think we should encourage these men in their diagnosis of tuberculosis and not offer discouragement.

I enjoyed the doctor's paper very much. It brought to mind a case I had, which had been diagnosed as tuberculosis. There was history of having lost weight for a period of six weeks, slight fever, cachexia. After blood examinations, I found one gamete of quartian malaria, but sufficient to make a diagnosis.

I recall another case who came west with diagnosis of tuberculosis. A call at midnight revealed the fact that he had had an enormous hemorrhage. He said, "I vomited blood." We all feel a little skeptical about a patient who insists that he has vomited blood. However, after some study a diagnosis of splenic anemia was made and removal of an enormous spleen has apparently cured the individual.

DR. A. M. FORSTER, Colorado Springs, Colo. (closing): I made no attempt to classify all the various conditions simulating tuberculosis, but simply chose a few interesting cases to illustrate certain of the main conditions which are mistaken, and which we ourselves frequently do mistake.

I hope my paper did not seem to be in a critical mood at all. I was very careful to introduce some of our own mistakes, and endeavored to make it appear all through the paper that we are making mistakes as well as other men.

I think what Dr. Egbert said of the diagnosis of tuberculosis by practitioners in the east is very timely and they should not be discouraged in sending us cases with tentative diagnoses of tuberculosis.

Dr. Gekler spoke of the cases of malignancy and the fact that they run a low grade temperature. My experience has been that they almost invariably do, and I have heard Dr. Lemon speak of that same fact. I was very much interested in what Dr. Gekler said about the finding of tubercle bacilli in the feces in complications of tuberculous enteritis. From our knowledge of tuberculous enteritis, before the complication occurs, it is our custom to institute heliotherapy, more as a general measure rather than because of any special value in the treatment of tuberculous enteritis, and we are extremely careful to regulate the diet of the patient.

Two of my colleagues (Drs. Webb and Gilbert) presented a paper the other day at Atlantic City on the question of the dietary handling of tuberculous enteritis. It has been our custom for a number of years to employ a modified regimen which we recommend in the treatment of gastric and duodenal ulcers. We try small and frequent feedings; three ounces of milk every hour, gradually adding some cream, until we have a mixture of three ounces of milk and one or two ounces of creeam. If the patient improves on this diet, we add two small meals, and we often find we are able to increase the patient's weight better by this method than by any other.

I wish to thank the officers of the Society for the invitation to be with you and for the reception that has been given me.

DIET AFTER WEANING

M. K. WYLDER, M. D., Albuquerque, N. M.

It has seemed to me that more information should be gathered relative to the proper procedure in feeding a baby after weaning. Volumes and volumes are written on feeding during bottle period, but almost nothing is written on what to do when we are forced to quit the bottle.

We all know that a baby cannot go directly from a milk formula to a course dinner, and yet in many households, too many, in fact, the meal is prepared and when the family are seated at the table a survey is made of the food in sight and some such remark as this is made, "Well, I guess we can give baby some of these mashed potatoes and gravy" or whatever food happens to be in sight that seems to be the least objectionable

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for the baby. The good Lord has given many babies wonderful stomachs and a large percentage of them thrive in spite of this abuse and neglect, but many fall by the wayside and others are handicapped in after years for proper nourishment and development in this most important period of their existence.

A breast fed baby must be given additional food as soon as he fails to show a regular gain. Some mothers can keep babies gaining regularly on the breast alone from ten to twelve months, but these are few indeed, and practically none can nurse beyond twelve months. After the baby ceases to gain, it is well to supplement one feeding which, if the baby is over six months old, should be given from cup and spoon, for if we substitute the bottle and nipple, the baby will have to be weaned twice, once from the breast and again from the bottle. As breast supply diminishes another and another feeding may be substituted until the baby is off the breast entirely. This change should be brought about so gradually that a constant gain is maintained and no upset whatever should occur from this change in the mode of life.

A bottle fed baby that has gained regularly and prospered on a satisfactory formula will, after about the ninth or tenth month, cease to gain if given no other food and become anemic and flabby. The reason for this is that the iron content of cow's milk is almost nil. Theoretically, the child is born with enough iron stored up in his body, principally in the liver, to supply his iron needs for the first eight or ten months. After this time iron must be supplied in his food if he is to continue to gain.

In bottle feeding after about the ninth month the sugars are diminished and the liquid added to the milk reduced, to the end that the average baby, by the time he is a year old, should be taking whole unmodified milk just the same as a breast weaned.

It has recently become almost a fad with many pediatrists to begin the use of green vegetables early; some advocate spinach, carrots, green peas and potatoes as early as six or seven months. This custom first originated in Germany, and some babies can stand this sort of thing, but others develop intestinal indigestion. The reason given for early use of these foods is to supply iron and other salts, but cow's milk is much richer in mineral salts than human milk and the only vegetable that contains any considerable amount of iron is spinach. If the baby is anemic, this may be given, as early as the eighth month, a teaspoonful at a time finely chopped or having been forced through a sieve or colander. However, this iron need may often be met more advantageously with the use of a tablespoonful of beef juice added to the bottle or fed from spoon. The best way to prepare beef juice is to cut round steak up in small squares, sear on hot skillet, and then squeeze the juice out with meat press. Fresh breads, hot cakes or biscuits should never be given; toasts should be put in the oven and dried out until they almost crumble.

In order that the child doesn't tire on one kind of bread, they should be varied; one may give zwiebach, graham, white and bran bread, and of the crackers, graham, soda, oatmeal and arrow-root may all be used. We may begin the use of cereals early; don't give the baby cereal any oftener than you would take it yourself; some feed morning, noon and night; once a day is sufficient. Fed too often, the baby will become disgusted and rebel. They should always be cooked from one to three hours and are better if cooked in milk and water than in water alone. Cream of wheat, farina, rice, oat meal, corn meal and hominy may be used. The coarser ones should be pressed through a fine sieve to break them up; they should be used with milk, but without sugar, as it is better not to educate the baby to use sugar, since sugar is such a concentrated food that it will likely destroy the taste for other foods. We may begin

the use of meats between the fifteenth and eighteenth months. A good way to begin is to scrape raw meat, make a small cake of it, heat on a hot plate until seared on both sides; we may begin with a teaspoonful and increase to a tablespoonful every other day for a fifteen months old baby.

Babies who do not get a sufficient amount of protein are likely to overeat of other foods that are perhaps harder to digest than would be a small amount of meat. A child should only be given meat once a day. If an exception is made to this rule, a thin slice of crisp bacon at breakfast will do no harm. A child that can take eggs should alternate with eggs one day and meat the next. We should begin the use of eggs very cautiously, as many children have an idiosyncrasy to eggs; it may be to the white or to the yolk or both; if skin tests are used, we can determine which, and if it is only to one, the other may be used. Children sensitive to eggs may develop urticarial eruptions, diarrhea or disturbances of digestive tract.

Soups have very little nutritional value; thick soups should not be used; broths and thin soups are valuable after an upset, as they supply liquid and the stomach can usually handle the small amount of nourishment they contain and at the same time they furnish sufficient bulk to satisfy the family that their baby is not being starved.

While not wishing to be dogmatic, I will give a brief outline of the way a baby may be fed at different ages, this, of course, can and should be varied considerably to meet the individual needs of each case. By the fourteenth month the baby's bottles should be reduced to three and two meals a day. In a general way, the feeding should be about as follows:

At 6 a. m., that is on waking, eight ounces of milk from bottle.

At 9 a. m., orange juice, prune juice or other fruit.

At 10 a. m., cereal with milk over it, toast or zwiebach, and milk from cup.

At 2 p. m., one tablespoonful of spinach, bread and milk from cup.

At 6 p. m., toast broken up with milk poured over it and milk from cup.

At 10 p. m., eight ounces of milk from bottle.

At 15 to 18 months, eggs and meat may be added, giving egg one day and meat the next. Four feedings a day are sufficient at this time and may be given more or less as follows:

At 6 to 7 a. m., according to family habits, orange or prune juice, cereal, bread and milk from cup.

At noon, egg or meat on alternate days, baked potatoes and other vegetables and bread.

At 6 p. m., toast, bread and jelly sandwiches or baked apple and milk from cup.

At 10 p. m., milk from bottle or cup.

At eighteen months to two years the feeding may be about as folows:

At 6 a. m., orange juice or other fruit, cereal, egg and some kind of bread.

At noon, meat cut in fine pieces (chicken, steak or lamb); vegetables such as potatoes, peas, string beans, carrots, spinach; desserts such as junket, tapioca, custard, sponge cake and cooked fruits.

At 6 p. m., bread stuffs, milk toast, dry toast, bread and jelly sandwiches, milk and fruit.

After this the child's diet remains about the same and gradually they approach the diet of grown persons; however, hot breads, rich pastries, hot cakes and meat more than once a day should be avoided until they get old enough to do like grown folks, that is, eat things because they like them, even though they know better.

DISCUSSION

DR. E. F. FRISBIE, Albuquerque, N. M. (opening discussion): I enjoyed Dr. Wylder's paper very much and think that he has covered the ground thoroughly. I believe there are several lines of study in recent years which have thrown much light on the subject of infant feeding, and one of these is vitamines. Heretofore we have been very much in the dark as to vitamines and used to recognize this as some indescribable sort of principle, we did not know what, except,

perhaps, that they were a little more prevalent in uncooked foods. Now we realize why they are of so much importance in the feeding of anyone, and especially a young child.

I think the suggestion of Dr. Wylder about a survey of the table by the parents is a good one, but only too frequently the table is first surveyed by the child and whatever the eye of the child happens to see that he might desire, the parents generally yield to that desire without any thought as to the child's welfare. It seems to me that the education of the parents is up to us. We do not pay enough attention to educating the parents and should impress upon them the necessity of using their judgment in what the child eats, rather than permitting the child's judgment, at least until the child has acquired a knowledge of what is good for him in the way of food, as well as in other matters.

One of the greatest changes in recent years in regard to infant feeding is the much earlier use of green vegetables, because of the importance of their use. They are now used in the second half of thef irst year of life, when heretofore they were advised only in the second half of the second year. A more convenient method of giving beef juice is to use the fresh juice that is always found on the pulp of rare steak and roast.

I think that especially strong measures should be taken towards discouraging the child in the use of excessively sweet foods, and particularly the habit of eating candy, which should be discouraged to the greatest age possible. After a taste of sweets is encouraged, it is likely to lead to excessive use, even in adults. This is particularly true in Americans, who are prone to indulge in sweets. I think the United States ranks first in the use of sweets over any other country in the world.

DR. M. K. WYLDER, Albuquerque, N. M. (closing discussion): I have not much to add to what has been said, but wish to thank Dr. Frisbie for her suggestions. The question of using green vegetables for vitamines is of doubtful value, to my mind, because you get more vitamines in orange juice than you do from any of these green vegetables, and the only excuse for using vegetables before the child is a year old is to give the iron that is in them, and the only vegetable that supplies iron in any amount is spinach. However, many men over the country are very enthusiastic about beginning to feed carrots, peas and beans from six months on. Others are reporting severe intestinal conditions in some of the babies who have been fed in this manner.

With regard to sugar and candy, the baby gets starch from cereals, and if we add sugar to the cereals we feed the baby, it takes away the appetite and he does not get the amount of other food he should. In giving babies candy, after they get large enough they insist upon it, and most babies rule the roost where they live. It does not do any more harm to give a baby candy than to give it sugar at its meals. That is not the time, however, when most people give the baby candy, as it is usually between meals. The time to give them candy, if you are going to give it to them at all, is right after feeding, and while on this point I want to say that when a child is brought to you by its parents and they say we cannot get our baby to eat anything just ask, "Does he eat between meals?" If they reply, "Oh, yes, we let him have a little lunch", the chances are the child nibbles all day and does not eat enough to supply his needs, and when meal time comes, not being hungry, he will not eat. They should be told not to let the baby eat between meals, and to wait until he gets good and hungry before feeding him. It will be a whole lot better for them if they will do this.

LENTICULAR DYSTONIA

Case Report*

E. A. DUNCAN, M. D., El Paso, Texas.

The patient is an unmarried Mexican woman of twenty-eight who complains of trembling and inability to walk or to perform any but the coarsest movements with her hands.

Her father, mother and two sisters are alive and well and there is no history of any nervous disease in her family.

The patient was healthy during childhood and adolescence except for an attack of typhoid at fifteen. There have been no other illnesses. She was not subject to headache. Her vision was always good except as noted later. There has been no impairment of hearing nor history of vertigo. She has had no nasal difficulties nor has she been subject to tonsillitis. She has had no glandular enlargements or goitre. There is no history of chronic cough, expectoration, hemoptysis, pleurisy or fever of obscure origin. She has never suffered with breathlessness, palpitation or chest pain. Her appetite and digestion have always been good but for years she has been constipated. There is no history of diarrheal attacks or of severe abdominal pain associated with nausea and vomiting. She has had no urinary disorders of any kind. She has never had edema of the face or feet. Her menstrual history is essentially negative. There have been no pregnancies. She has had no injuries or surgical operations.

(*Patient presented before the El Paso County Medical Society, March 24, 1924.)

In 1912, when the patient was sixteen, she became acutely ill with fever, headache and delirium. There was restlessness but no head retraction. Within four or five days after the onset of this illness she developed trembling and jerking movements of the head and extremities together with strabismus. At times the movements were of such violent character that, on several occasions, she fell from the bed. The fever subsided in the course of two months and with it the strabismus. The tremor and jerking movements also diminished to a certain extent but for six months she was unable to talk or to feed herself. No further history of involvement of the nervous system during the febrile illness can be elicited from the patient or her mother. She was now unable to stand or walk on account of the exaggeration of the movements on muscular effort; they did, however, disappear during sleep. The patient's condition then remained stationary for eight years when she began to show some improvement, the jerking grew less so that she became able to sit up. She has never walked on account of the violent jerking tremor of the legs nor has she been able to feed herself with a fork or spoon but can take food from a cup.

The physical findings of interest in the case are limited to the nervous system. The patient is well developed and nourished. Mentally she is clear but she has some tendency to senseless grinning and giggling.

There are no trophic changes in the skin, its appendages or the joints. There is no flushing, sweating or tache. There is no tenderness of the skull. The spine and joints of the extremities are all freely movable.

CRANIAL NERVES

1st: There is no disturbance of the sense of smell.

2nd: There is no impairment of vision nor contraction of the fields. The media are clear and the eye-ground negative.

3rd, 4th and 6th: There is no ptosis. The pupils are round, central, equal and react to light and with accommodation. Ocular movements are good in all directions. There is no nystagmus.

5th: Muscles of mastication contract strongly and equally. There is no disturbance of sensation of the face.

7th: The face is symmetrical. There is no weakness of the facial muscles or impairment of sense of taste on the anterior two-thirds of the tongue.

8th: Hearing is acute. There is no tinnitus or dizziness.

9th: Swallowing is undisturbed. Sense of taste present on posterior third of tongue.

10th: Uvula hangs in the mid-line and movements of the palate are unimpaired. There is no vocal cord paresis.

11th: Contractions of sterno-mastoids and trapezii are strong and equal.

12th: Tongue is protruded in the mid-line. There is no atrophy or tremor. Speech is strained and evidently accomplished with some effort, the voice varying constantly in intensity. This appears to be due to variations in expiratory muscle activity.

Motor System. The head is held erect and shows a constant coarse tremor which is greatly increased when the head is held in any strained position. When patient lies relaxed in bed there is no tremor but when any position is assumed which requires any muscular effort a very coarse, jerking tremor of the part results. The character of the tremor is almost choreiform. It is, however, a true tremor in that it consists in rhythmic, alternating movements. Patient cannot stand or walk on account of the violent movements of the legs. There is no Kernig or Brudzinski. There is some hyperextensibility of the elbow joints. There is no spasticity, loss of power or atrophies in any muscle group. All superficial and deep reflexes are present and there are no abnormal reflexes. Micturition and defecation are undisturbed.

Sensory System. Patient states that at times she has some formication in the right arm. There is no pain or numbness. Sensibility to touch, pain, heat and cold, position and vibration sense are unimpaired. There is no astereognosis.

Laboratory. Urine clear, acid., sp. gr. 1020; no albumin or sugar. The sediment shows epithelium in moderate amount. Blood Wassermann negative. Spinal fluid is under no abnormal pressure; cells two; globulin a trace; copper reduced; Wassermann negative.

To summarize, we are dealing with the results of an acute febrile illness with strabismus and tremor. Now after twelve years the patient exhibits an extraordinary violent tremor of the action type. There is no evidence of pyramidal tract disease. The lesion is located in the basal ganglia, the lenticular and caudate nuclei which form the corpus striatum, the locality damaged in the group of hyperkinesias known as lenticular dystonia which includes, among others, paralysis agitans, Huntington's chorea, torsion spasm, bilateral athetosis, progressive lenticular degeneration or Wilson's disease and certain post-encephalitic syndromes. The two last named are to be considered in this case. Wilson's disease begins with high irregular fever for a rather long period and exhibits muscular movements of the same character as in this patient. Rigidity, however, is a cardinal feature, late contractures develop, hepatic cirrhosis is always present though it may not be demonstrable during life. The disease is essentially progressive, the patient finally becoming bed-ridden and speechless, the average duration of the disease in chronic cases being about four years. This patient had an ocular palsy with the original illness. She has passed through a period of very definite improvement and after twelve years her condition is at least stationary. Her present condition is regarded as the result of an attack of encephalitis with the common involvement of the corpus stratum.

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TO THE DOCTORS IN NEW MEXICO WHO ARE NOT AFFILIATED WITH THE NEW MEXICO MEDICAL SOCIETY:

I have written all of you, whose names and addresses I have, several times, inviting you to align yourselves with the reputable profession by becoming members of the New Mexico Medical Society.

Some have replied and sent in applications for membership. Others, for reasons probably satisfactory to yourselves, have not; more than likely it is only a matter of procrastination, you thinking and intending to do this, but you either forget it or keep on putting it off. To these I will say that I would gladly write each of you repeatedly if it were necessary to get you in; still, if you take the proper view of the matter it seems to me that one invitation should be sufficient.

It is hard to understand how any reputable physician will deliberately isolate himself from the rest of the profession. It is very easy to account for the attitude of disreputable and unethical men in this matter, but why those who claim to be up-to-date should take this attitude is beyond me.

Last year there were about seventy physicians who became affiliated with us, men who had not heretofore been identified with organized medicine. There are still about fifty or sixty doctors in the state who should align themselves with organized medicine.

It is my earnest desire to enlist every one of you who make any claim to being reputable physicians.

The admittance fee is only $5.00, which must accompany your application, and this fee also pays annual dues for 1925 and sends you the organization journal, Southwestern Medicine, free. I think you will agree with me that the journal alone is worth more than the dues.

If you have mislaid the blank application I sent you, just drop me a line indicating that you desire to align yourself with the New Mexico Medical Society and help fight the battles of organized medicine and I will at once blaze the way for your admittance.

Do not stay aloof and let the balance of us do all the fighting while you reap your share of the benefits of the victory.

At any rate, write me, even if you still decline, so I will know just where to place you and not bother you again.

Fraternally,

C. M. YATER,

Secretary, New Mexico Medical Society.

ST. JOSEPH'S HOSPITAL STAFF MEETING

(Phoenix, Arizona)

The Medical Staff of St. Joseph's Hospital resumed their regular monthly meetings on Saturday evening, October 4, with a study of the thirty-two histories which formed the basis of the criticisms of the clinical records by a recent visitor from the College of Surgeons. Some of these histories were excellent, some indifferent and some hardly deserved the name of clinical record. Twenty-five members of the staff were present, and sixteen histories were reviewed, a brief resume of the faults found being as follows:

Case 1. Tuberculosis. Personal history indicated the diagnosis, as it should. The physical examination recorded conclusions and not the physical signs, this being the chief fault of the record.

Case 2. Incomplete abortion. Fair history of illness, but physical findings gave conclusions instead of findings. Progress record not kept by doctor.

Case 3. History says appendix and one tube removed by previous operation; operative record this time says buried appendix and bilateral appendectomy done. No explanation of discrepancy. Under "patient's complaint", the doctor's diagnosis is given. Progress record not kept by doctor.

Case 4. Chronic appendicitis. Fairly good, though brief, history. Physical findings not very complete. Other records O. K.

Case 5. Personal history fair; physical examination says "arteriosclerosis" without any physical findings charted; diagnosis of myocardial degeneration. Incomplete record.

Case 6. Hernia. Personal history brief and thought by some critics incomplete. Diagnosis given under "Physical Examination", instead of the signs present.

Case 7. Typhoid, with death. Incomplete physical findings, without any statement regarding the cardinal signs of typhoid. Diagnosis based on laboratory findings which pathologist did not consider conclusive. No progress record, though patient died in hospital.

Case 8. Endometritis, salpingitis and laceration. History and physical findings incomplete and no progress record. Nothing in record to indicate cause of the abortion.

Case 9. Mastoiditis. Fairly good history and examination record, but incomplete progress sheet.

Case 10. Tonsilitis. Incomplete record as to cause for removal of tonsils.

Case 11. Stricture of ureter. Imperfect history of complaint; no physical examination record; no record of cystoscopic findings; no progress sheet kept.

Case 12. Encephalitis. Interesting case recalled by several of the doctors present. No history of illness, patient's history or record of any physical examination. No record of the findings of several consultants. Nothing in history to indicate the reason for the diagnosis.

Case 13. Corneal ulcer. No history of the case, no physical examination or progress sheet. Doctor stated he had a complete record in his office, but has not up to now made it a practice to transfer office records to the hospital.

Case 14. Tonsilitis. Only entry is "hypertrophy" of tonsils. No record of the reason for operating.

Case 15. Septicemia of hand. No history of the infection or record of any physical examination. No progress record showing what happened in the hospital.

Case 16. Nephrosis. Very imperfect history, telling nothing of value. No physical examination. No progress record. Several laboratory sheets, but nothing connecting these with the diagnosis.

Discussion of these clinical records was quite animated, and it was decided that, at the next meeting, the six most complete histories would be selected for clinical discussion, and the six worst records would be brought forward for criticism and study of how they could be improved.

A number of lantern slides of pyelographic examinations made recently in the hospital Urological Department were shown, and the pathological findings discussed.

W. WARNER WATKINS,
Secretary.

THE ARIZONA DEACONESS HOSPITAL STAFF MEETING

(Phoenix, Arizona)

The Arizona Deaconess Hospital, Phoenix, Arizona, held its annual meeting on Saturday evening, October 25. It was featured by a complimentary dinner tendered by the hospital, attended by thirty members of the staff and several members of the Board of Directors.

Following the dinner, the Staff adjourned to the regular meeting place in the Board of Directors' room, the chief order of business being the annual election of officers.

Dr. W. C. Ellis, the retiring Chairman of the Staff, thanked the members of the Staff for their cordial support of the hospital and of the Medical Staff organization during the past year, and stated that he was not a candidate for re-election, preferring to let someone else have the grief for the coming term. Informal ballot resulted in the election of Dr. George E. Goodrich as Chairman of the Staff, the only other member sharing in the votes being Dr. John Wix Thomas, who had, however, previously requested his friends not to support him for the office, as he was not anxious for the responsibility this year.

In the selection of the Secretary of the Staff, it was necessary to take three ballots in order to decide the contest between Dr. H. L. Goss, the present secretary, and Dr. O. H. Brown. On the final ballot, Dr. Brown was elected by a majority of two votes.

A resolution was introduced and passed by the Staff requesting the Board of Directors of the hospital to modify their by-laws in such a way as to make the Chairman of the Staff a member ex-officio of the Board of Directors, in order that a liaison be formed between the governing board of the hospital and the medical organization.

An amendment to the by-laws of the Staff was presented to be voted upon at the next meeting, providing that a Program Committee be established, to consist of the secretary, the hospital pathologist and the chairman of the Records Committee, to formulate from the records programs for the staff meetings.

The superintendent of the hospital, Mr. John A. Bowman, having recently resigned, the following resolution was introduced and passed by a viva voce vote of the Medical Staff:

"Whereas, Mr. John A. Bowman, Superintendent of the Deaconess Hospital, has tendered his resignation, to take effect in the near future; and,

Whereas, the members of the Medical Staff have worked in close co-operation with him during the past year and are intimately acquainted with his efforts in building up the organization of the Hospital, and with the efficient management of the surgical departments as conducted by Mrs. Bowman; and,

"Whereas, we believe that Mr. and Mrs. Bowman have accomplished a magnificent piece of constructive work in building this Hospital into a Class A institution within the short period of one year;

"Be it, therefore, Resolved, That we, the Medical Staff of the Deaconess Hospital hereby express our sincere appreciation of their efforts and accomplishments, and heartily commend them to any hospital which may be fortunate enough to secure their services.

"Passed by unanimous vote of the Medical Staff, at their annual meeting, October 25th, 1924, with thirty-five members present."

A vote of thanks to the hospital for their entertainment at dinner was passed by a rising vote.

W. W. W.

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ARIZONA DEACONESS HOSPITAL (Phoenix) HAS NEW SUPERINTENDENT

The announcement of the resignation of Mr. John A. Bowman as superintendent of the Deaconess Hospital, at Phoenix, was received with surprise and regret by the medical profession of Maricopa County. Mr. Bowman's experience and ability in organizing hospital work was shown by the fact that within the short period of one year after he had taken charge, the hospital was accepted as a Class A institution by the College of Surgeons, an accomplishment which can hardly be excelled. This success was largely due, also, to Mrs. Bowman, who had general charge of the surgical work in the hospital, and, during much of the time, was in personal charge as chief surgical nurse.

The hospital was fortunate in having at hand a capable successor in the person of Mrs. J. O. Sexson, formerly Miss Runyan, who came to Phoenix several years ago to take charge of the hospital, but its completion being delayed, she returned east. Later she married Mr. J. O. Sexson, now chairman of the Board of Directors of the hospital, and returned to Phoenix. She was formerly superintendent of Flower Hospital in Toledo, Ohio. She was induced to take over the superintendency of the hospital for the coming year. Mr. J. O. Sexson will act as business manager of the institution, his connection on the Board of Directors having given him a knowledge of the business affairs of the institution which eminently fits him for this position.

The medical men of Phoenix who became acquainted with Miss Runyan, when she formerly came here and conferred with them about the hospital work, will welcome the opportunity to work with her again in continuing the excellent work at the Deaconess started by Mr. and Mrs. Bowman.

DR. JEREMIAH METZGER of Tucson was the accredited representative of the National Tuberculosis Association of the United States of America at the meeting of the International Union Against Tuberculosis, which was held at Lausanne, Switzerland, August 5 and 7. Dr. Metzger is Medical Director of the Tucson-Arizona Sanitarium, and returned about September 1 from attendance at this convention, which was the fourth conference of the International Union.

THE SOUTHERN CALIFORNIA MEDICAL ASSOCIATION, whose annual meeting was scheduled to take place November 7 and 8, has changed its dates to November 14 and 15. This meeting will be in Los Angeles, and members of the medical profession of the Southwest are cordially invited to attend. The secretary is Dr. Charles T. Sturgeon, 1136 West Sixth street, Los Angeles. Dr. Sturgeon is well known in Arizona, where he formerly practiced. Dr. W. L. Brown of El Paso is on the program of this Association.

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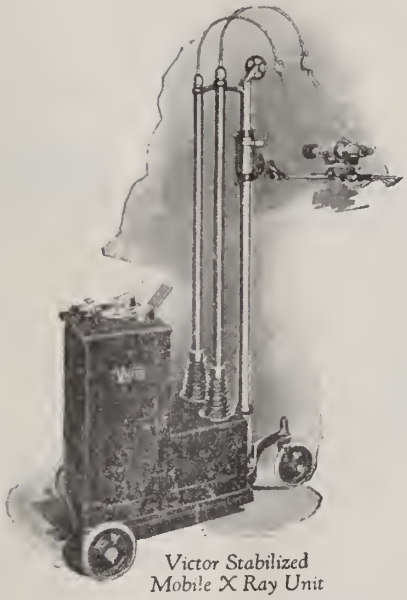
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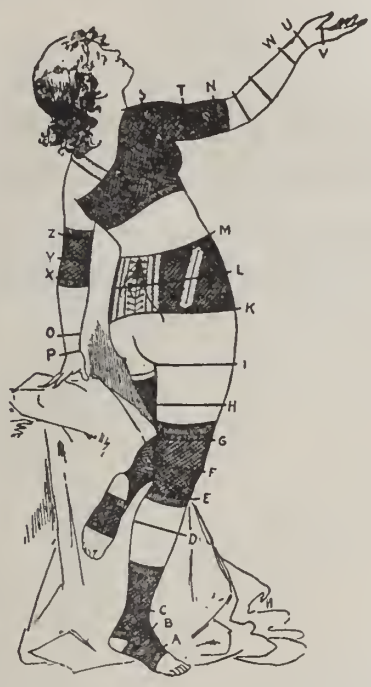
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DR. ALVIN T. KIRMSE, formerly of Globe, Ariz., later associated with Dr. Hugh Crouse of El Paso, and recently located in Milwaukee, Wis., has become associated with the Thomas-Davis Clinic in Tucson, and announces that he will practice obstetrics and pediatrics with that group.

DR. WILLARD SMITH of Phoenix has returned from his postgraduate tour of the middle west and east. He has visited the Mayo Clinic, Dr. Farr's clinic in Minneapolis, clinics in Philadelphia, New York and Chicago. The Congress of Surgery and the College of Surgeons in New York, the middle of October, was the chief attraction, and following this he has gradually found his way back to Arizona.

DR. E. W. PHILLIPS, resident physician of St. Luke's Home, Phoenix, has returned and taken up his work, after a vacation of a month of two, which was spent in northern Arizona. As previously announced, during his absence Dr. E. A. Gatterdam of the Fort Whipple staff has been supplying as sanitarium physician for St. Luke's.

DIPHTHERIA IN GRAHAM COUNTY (Arizona)

The public health officers of Thatcher and other points in Graham County are just completing a general immunization of the pupils of the Thatcher public schools, the Eden and

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Central schools and the Gila College. The Pathological Laboratory of Phoenix have supplied them with 100 one thousand unit packages of antitoxin for immunizing exposed pupils, 500 Schick tests, and 700 toxin-antitoxin immunizations. Dr. W. E. Platt of Thatcher advises that the work is just being completed.

MARICOPA COUNTY MEDICAL SOCIETY ENTERTAINED BY DR. WOODALL

On the evening of October 18 the Maricopa County Medical Society were the guests of Dr. Woodall at his newly completed sanitarium on North Central avenue, in Phoenix.

Twenty-six members of the society gathered there for dinner as the guests of the sanitarium, the dinner proving to be a five-course banquet for the main crowd and six courses for a selected few who remained for a post-prandial session.

Following the dinner and before the extra session mentioned, Dr. H. T. Bailey described the work he engaged in at the Postgraduate School in New York the past summer, and the various new things he learned about eye, ear, nose and throat diseases.

Dr. J. M. Greer of Mesa then described his experiences at the Cleveland Clinic and in the clinics of other surgeons in Cleveland. The organization of the Crile (or Cleveland) Clinic was given in some detail. Dr. Greer was convinced that, with the exercise of sufficient attention to the cases, any physician could give the service to his patients which would make it unnecessary to send any of them to such clinics.

DR. JAMES THOM, formerly of Jerome, Ariz., now in charge of the X-ray Department of the University of California Hospital, in San Francisco, was a visitor in Phoenix the last of October.

DR. FRED HOLMES of Phoenix has moved his offices from the second floor to the fourth floor of the Goodrich Building. He will have joint reception room with Drs. Harbridge, Tuthill and Gudgel.

DR. A. C. CARLSON of Jerome has just returned from an eastern trip, which included the meeting of the Congress of Surgery and College of Surgeons in New York.

DR. R. D. KENNEDY of Globe is reported to have returned from his usual visit to the College of Surgeons' meeting in New York.

IMMUNIZATION OF INDIANS AGINST DIPHTHERIA

The Indian Service is said to have ordered all the Indians in the Government schools of Arizona to be immunized against diphtheria with toxin-antitoxin. Dr. J .E. Stroud of Tempe is immunizing the Indian pupils of the McDowell Reservation.

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For Table of Contents—See Advertising Section Page 1

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VOL. VIII. DECEMBER, 1924 NO. 12

ORIGINAL ARTICLES

HEART BLOCK 577
F. T. Fahlen, M. D., Phoenix, Ariz.

SOME ASPECTS OF FREUDIANISM 582
M. I. Leff, M. D., El Paso, Texas.

NON-SURGICAL BILIARY DRAINAGE 589
Elliott C. Prentiss, M. S., M. D., El Paso, Texas.

WHAT SHALL THE INDUSTRIAL SURGEON OF THE SOUTHWEST REGARD AS "TRAUMATIC HERNIA?" 593
Frank T. Hogeland, M. D., Cananea, Sonora, Mexico.

A STEP TOWARDS THE PROLONGATION OF LIFE 596
A. W. Vanneman, M. D., Douglas, Ariz.

FOCAL INFECTION 599
H. A. Ingalls, M. D., F. A. C. S., Roswell, N. M.
(Discussion by Drs. Wylder and Cornish.)

THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST 602
Tenth Annual Meeting at Phoenix, Nov. 6-8.

SURGERY IN THE TUBERCULOUS 612
Report of Clinic by Willard Smith, M. D., F. A. C. S., Phoenix, Ariz.

CLINIC ON GENERAL SURGERY 615
E. Payne Palmer, M. D., F. A. C. S.; Charles S. Vivian, M. D., and F. J. Milloy, M. D., Phoenix, Ariz.

CLINIC ON GASTRIC ULCER 621
Frank J. Milloy, Phoenix, Ariz.

EDITORIAL AND NEWS

THE HERNIA QUESTION—(Report of Special Committee of the Medical and Surgical Association 626

ARIZONA DEACONESS HOSPITAL STAFF MEETING 638

ST. JOSEPH'S HOSPITAL STAFF MEETING 639

NEWS ITEMS 644

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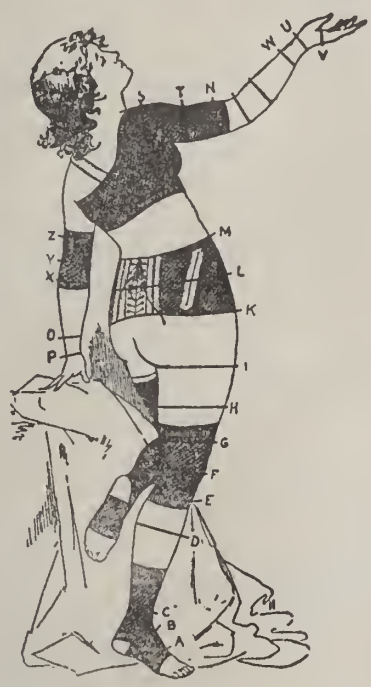
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HEART BLOCK

F. T FAHLEN, M. D., Phoenix, Arizona.

Heart block has been known for so long that it no longer is a medical curiosity, although a phenomenon of much interest still. This is particularly the case in analyzing the arrhythmias of minor degree which were unexplained prior to the knowledge of the function of the A. V. bundle. Heart block should be looked upon as a symptom of a disturbed cardiac mechanism, and is essentially an interference of varying degree with the conductivity of the A. V. bundle somewhere in its course. It should be remembered that the mammalian heart, excised totally, may be made to beat, for instance, by perfusion with certain solutions. Again, in the embryo it also beats with a regular rhythm before ganglion cells are developed in its walls. These facts indicate two things, (a) that there is an inherent power of heart muscle to contract without impulses from the central nervous system; (b) that the heart muscle may contract without influence from the ganglion cells contained in its walls.

However, this inherent rhythmical contraction remains latent so long as the heart is controlled by the nervous mechanism which so definitely, at least, influences its action in normal conditions, but reasserts itself when this influence is withdrawn.

The heart as a whole has fundamentally several marked characteristics. (1) It has its inherent rhythm without external stimulation. (2) It has the power of responding rhythmically to continuous stimulation. In other words, cardiac tetanus cannot be produced under ordinary conditions. Furthermore, it contracts to its full strength, by the slightest stimulus capable of causing contraction at all, as well as it does by the strongest stimulus. (3) Contraction once begun completes itself, and a stimulus thrown in at the time of contraction causes no increase in the strength of that contraction. (4) its co-ordination.

These are characteristics relating to the heart as a whole. The interest of the present subject is centered principally in the first of these; that is, the inherent rhythm of the isolated heart, and the fourth, the coordination of the heart, relating especially to the sequence of the ventricular rhythm upon that of the auricles. It is known that the rhythmical contraction of the heart begins at the mouths of the large veins, also that heat and cold applied to an area between these vessels accelerates or inhibits its action respectively, which does not occur by heating or cooling any one other area of the heart, indicating that the anatomical source of the heart rhythm lies in this area. From this area at the mouths of the great veins, the impulse is con-

(*Read before the Maricopa County Medical Society, at Phoenix, Ariz., October, 1924.)

ducted through the auricles to the ventricles, with a marked interruption at the auriculo-ventricular junction. Incidentally, it is well to say that this interruption has been proven to be too long an interval, if we assume the neurogenic theory of conduction of the heart impulse to be true, as it is known that the conduction of nerve tissue is very rapid.

In that the question of ventricular co-ordination is the problem of chief interest, its physiology demands greatest activity in research.

While it is known that the ventricles normally derive their rhythm and rate from the auricles, it is also known that the impulse from the auricles is not essential to produce either the contraction or rhythm of the ventricles. As has been said, the isolated heart as a whole has an inherent rhythm. Now it is known also that the auricles and ventricles have an inherent rhythm of their own. In other words, the heart may be looked upon as an organ subservient to the control of the central nervous system, yet capable of contracting rhythmically when totally isolated. Also that the rhythmicity of the ventricles, while subject in the normal state to the control of the auricles and through them to the central nervous system, nevertheless is not functionally dependent upon the auricles. The question arises, to what extent are the ventricles subject to the influence of the auricles? And furthermore, to what extent are they subject to the nervous mechanism, first, when under normal conditions, and secondly, when they are isolated. The first is known, and the latter question I shall take up later, in speaking of the ventricular action in block.

These facts as stated are known, and immediately arises the question regarding the connection between auricles and ventricles, its character and influence normally and its anatomical location. It is necessary here to review very briefly some work in the anatomy and physiology of the heart.

For years the nature of this connection was unknown. At first, a muscular connection was denied, as there had never been definitely found any muscle fibres connecting the auricles with the ventricles, although the presence of such fibres has long been suspected physiologically. One strong reason was the unquestioned delay of the contraction wave at the auriculoventricular junction—too long, as has been explained, to conform with the theory of nerve transmission. However, His, Jr., worked out what he calls the auriculoventricular bundle. Later, Retzer demonstrated it most beautifully both by dissection and microscopically. Briefly, this bundle of fibres consists of a strand arising below the foramen ovale on the right side of the interauricular septum, passing downward and forward through the fibrous ring between the auricles and ventricles and blending with the musculature of the interventricular septum and ventricular walls. Retzer describes it as being 18 mm. long, 2.5 mm. broad, and 1.5 mm. thick.

The fibres are somewhat different from other heart fibres, richer in nuclei, paler in staining reaction, only slightly fibrillated, and more embryonic in character. You will remember that the rhythm of the heart is established before ganglion cells are found in its walls. The idea has arisen that this embryonic inherent rhythm is retained in this bundle and is possibly the source and cause of the inherent rhythm known to exist in the ventricles. This, however, I believe, remains unanswered. Again, anatomically the auricles (except the sinuses) and the upper portion of the ventricles contain ganglion cells. Also, it is very probable that the terminals of the vagus are closely associated with these and their impulses distributed through the ganglion to the muscle fibres. The accelerator fibres are also easily found in the auricles and ventricles, forming the subserous and myocardial and subendocardial plexuses. Therefore, there is no lack

of nerve connection of the auricles with the ventricles anatomically. Also physiologically stimulation of the accelerator fibres markedly accelerates both auricles and ventricles in the normal heart, while stimulation of the vagus definitely inhibits both the auricles and the ventricles.

Thus from an anatomical standpoint, the character of tissue transmitting impulses from auricles to ventricles may obviously be either nerve or muscle. Physiologically much of this tissue can be eliminated as a route of transmission from auricles to ventricles as numerous experimenters have shown that all tissue connecting the auricles and ventricles may be destroyed except the interauriculoventricular septum, without destroying the normal sequence of the auriculoventricular rhythm. This proves substantially that the path of conduction lies in the septum provided there is a dependence of the ventricles for their rhythm on the auricles. That there is such a dependence in the normal state of the ventricular rate and rhythm, is conclusively shown by the fact, that destruction of this path completely isolates these chambers of the heart from each other. The demonstration of this fact has been the basis of the study of heart block.

By heart block is meant an interference with, or total obstruction of, the impulse which, coming from the auricles, normally causes the ventricles to beat in regular sequence to the auricular contraction, as a result of which interference or obstruction the ventricles in the first instance partially lose their co-ordinating rhythm with the auricles, and in the latter, totally lose it and begin a regular inherent rhythm of their own. Thus block may be partial or total. The impulse conduction may be only obtunded or completely shut off, causing, respectively, little or complete isolation of the ventricles. Furthermore, as has been shown, this impulse comes through the tissue in the cardiac septum. This is not only confirmed as to the whole septum, but holds true directly to the auriculoventricular bundle of fibres, as shown by the experiments in producing block, since block was never produced except when this bundle was involved by pressure or destruction. Also block was always produced when this bundle was shown to have been pressed upon or destroyed, showing conclusively that it is the path of conduction of these impulses. When block is partial, various phenomena are noted, depending on the degree of block. Experimentally partial or complete block has been produced in the animal by pressure, such as by ligating or clamping, and secondly by destroying this tissue. Compressing these fibres by a clamp made for the purpose, beginning with the lightest pressure and gradually increasing it, produces accurately the various stages of block, the first change made being an increase in the interval of interruption at the auriculo-ventricular junction. The auricles continuing an uninterrupted regular rhythm throughout, there is then noted an occasional dropping of a ventricular beat. By increasing the pressure of the clamp, it is possible to drop a ventricular beat in 10, 9, 8, 7, 6, 5, 4, 3, 2, auricle beats successively. Then comes the establishment of various so-called rhythms, wherein one or two auricular beats occur to one ventricular beat. Again by greater pressure one ventricular beat to three and later four auricular beats. Here then we have the various degrees of partial block, always relative to the degree of interference with the conductive power in the bundle of His, which result now in what is called the complete block—the time when the ventricles, now withdrawn totally from auricular impulses, assume their own inherent rhythm entirely independent of and asynchronous with the auricular rhythm. It has been determined that if after three or four auricular beats have occurred no ventricular beat occurs, the ventricles then take on this inherent rhythm, even though the block is not entirely complete. This

is called by Erlanger a relative complete block.

In explanation of this phenomenon of ventricular response to partial obliteration of the conduction of the impulse Erlanger has done truly beautiful work. He explains it in this way: As is well known, and as stated earlier a stimulus thrown in at the contraction period of a ventricle receives no response. However, the irritability of the ventricles to contraction begins immediately after their contraction is ended and increases until they again respond by contraction. In other words, their irritability to contraction stimulus is increased the longer their contraction is delayed, up to a certain point. Increasing compression of the bundle of His means, to all practical intents, continual lessening of the conductivity of the bundle of His, that is, lessening of the strength of the impulses from the auricles to the ventricles. Now if the auricular impulse is not absolutely shut off by interference with this conduction, the irritability of the ventricles will ultimately reach a point—after 1, 2, 3, 4, auricular beats—where the obtunded impulse will be sufficient stimulus to cause the ventricles to contract, which they do to their utmost capacity at that given moment. After this, their irritability falls to zero, increasing again until the next contraction. It has been shown also by Erlanger that if, in partial block, the auricular rate be slowed, the block may become less complete, for instance, a 3 to 1, rhythm may change to a 2 to 1 rhythm. Also if the auricles be stimulated through the accelerator fibres, or their rate increased in other ways, the block increases. This he explains by the supposition that there is an inverse ratio of the rate to the strength of the impulses coming from the auricles; hence increasing the auricular rate would lessen the strength of the impulses to the ventricles, and thereby increase their tendency toward a complete block; and inhibiting the auricular action, and thereby strengthening the impulses, would cause the ventricles to become again subservient to the control of the auricles.

In complete block, as in partial, the auricles beat regularly with unaltered rhythm. Also, as stated, in complete block the ventricles beat with a rhythm all their own and without relation to the auricles, and it is in this condition that the control of the auricles over the ventricles is withdrawn. During this condition the ventricular rate is of course much reduced, being from 10 to 40 a minute, while the auricular rate may be normal or above.

The influence of the nerves over the heart in block is interesting. The effect over the auricles of the vagus and accelerators is unchanged. However, the vagus action on the ventricular rate is remarkably influenced, and it is practically proven that their influence over the ventricles in block is nil, warranting the conclusion that vagus influence over the ventricles lies in their normal state through their action on the auricles.

In partial block of any degree, the auricles and ventricles may be completely inhibited by stimulation of the vagus, as easily as in the normal condition. It is uniformly stated that the vagus loses its control over the ventricles at the instant at which block becomes complete, and is indeed an index as to when that block becomes complete.

The accelerator influence is not interfered with either in partial or complete block, indicating its effect on the ventricles through other channels. Of course on stimulation of the accelerators in complete block, the ventricles respond with an increase in their rate, relative only to that of the auricles, not equal to it. According to Erlanger, when the block is complete the ventricular rate is not greatly disturbed by conditions normally influencing the ventricular rate, such as changes in blood pressure, changes in posture, asphyxia, plugging of one or the other coronary artery.

At first thought, the production of block and its subsequent manifestations seems simple, and yet there are certain phenomena in its production that demand our careful attention.

It has been found that when complete block is produced there occurs an interval before the ventricles contract, at times so long that death of the animal seems imminent. For instance, 50 seconds has transpired without the ventricles contracting and then they contracted only after mechanical stimualtion. This so-called stoppage is due probably to the removal from the ventricles of the rhythmical stimuli of the auricles. As pointed out by Erlanger, this is shown probably in the fact that, as several experiments showed, when there is only partial impairment of the conduction of the auriculo-ventricular bundle, stoppage has been obtained by increasing the auricular rate. thereby possibly producing fatigue ot the impaired bundle.

Also after ceasing rhythmic stimulation of the ventricles in complete block, stoppage occurs for a variable time, their rate gradually increasing up to that of its inherent rate.

Furthermore atropine has no influence in block, for it causes no acceleration of the ventricular rate as it does in the auricles after stimulation of true vagus.

It was thought that possibly this hesitation of the ventricles might be due to a mechanical stimulation of an inhibitory mechanism in the auriculo-ventricular bundle. This being tested it was found that neither mechanical nor electrical stimulation of this bundle caused inhibition of the ventricles, but rather the opposite, the ventricles usually responding by an extra systole.

An interesting clinical phenomenon is that of auricular flutter in which the auricular beat rhythm, but at a very hard rate, frequently between 200 and 300 a minute. By this I do not mean a paroxysmal tachycardia in this respect that there is in flutter, a disassociation of the auricles from the ventricles, caused evidently by a fatigue of the A. V. bundle, and an inability on its part to convey such rapid impulses to the ventricles. Consequently every other impulse, or every second or third impulse goes through and meets the ventricular irritability, giving a varying degree of heart block, usually two to one.

There are various pathological causes for block, among them ulcerative endocarditis, sclerosis, fatty degeneration, syphilitic gummata, neoplasms and arterial sclerotic changes in the coronary branches.

The clinical manifestations of such cases varies from the extreme epileptic form to the Stokes-Adams' syndrome or petit mal attacks to an absence of any clinical symptoms whatever subjectively and only an occasional miss beat or even a mere lengthening of the A. V. interval. This can be determined best by the electro cardiograph or the syphygmograph, such as Jacquet or MacKenzie's polygraph. Heart block has existed in patients through many years, and unquestionably can exist without materially interfering with the patient's welfare, provided integrity of the heart wall is maintained. Many epileptics have probably been heart block cases, as undoubtedly was Napoleon who was said to have had epileptiform seizures with a pulse of about 40. It has been my experience that heart block cases are comfortable so long as they remain in complete block, and it is only in changing from partial to complete block that the convulsive seizures or petit mal attacks occur. For this reason it is sometimes good practice to throw a patient into complete block with digitalis when there is danger of such fluctuation. The epileptiform seizures are unquestionably due to cerebral anemia as it has been repeatedly demonstrated that the pulse stoppage occurs before the convulsions. In one case I was able to count 55 seconds before the ventrical began to contract in a case of partial block, going into complete block. These cases of repeated sud-

den changes from partial to complete block are very likely caused by angiospasm superimposed upon some degree of obliterating end arteritis of the nutrient artery to the A. V. bundle. If it is possible to establish the causative factor of the interference with the function of the A. V. bundle, it is possible at times to offer a more accurate prognosis as to institute measures of relief in some cases, for instance, cases due to syphilitic gummata involving the septum of the heart can be totally relieved. Sometimes rest, strychnine, atropine or potass. iodid. produces results, however ordinarily therapeutic measures are without definite action in relieving the heart block, but may definitely better the general cardiac situation by re-establishing compensation.

SOME ASPECTS OF FREUDIANISM

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In his most recent attempt to annihilate Freudianism, Professor Wohlgemuth of England sums up his effort with an epigram: "Darwin discovered the descent of man and Freud discovered that there was no decent man." On the other hand, President Stanley Hall of Clark University, who introduced Freud to the American public, is of the opinion that Freud's theories are destined to exert as great an influence on the human mind as Aristotle's "Categories." These old psychologists have studied, not merely read, Freud, and yet their opinions differ so widely. Those that merely read something about Freudianism invariably have a derogatory opinion of the theory as well as of the man, Freud. The same is the case with Darwinism or any other revolutionary discovery which opposes established institutions or old beliefs. As we shall see later, this is a natural phenomenon. It is indeed very proper for one who does not understand Freudianism to believe that Freud is a degenerate sensationalist who prefers to see lurid and sensuous cravings rather than noble and altruistic strivings as the cause of human progress, just as it is natural for a fundamentalist of Bryan's type to insist that Darwin was a contemptible atheist who would rather trace his lineage to the monkey than to God.

Now, what is Freudianism? It is a new system of psychology which teaches primarily how to discover the wishes and interpret the behavior of the real as well as of the conscious Ego; secondly, it instructs how to treat psychoneuroses and psychoses in a new, hitherto unknown way.

To understand Freudianism, it is imperative to study attentively all of Freud's works and some of the works of his followers, especially Kempf's Psychopathology. It is of course physically impossible to condense Freudianism into a half-hour paper. Tonight I shall attempt to present some aspects of this vast subject. But first a word about the man himself.

Doctor Sigmund Freud is Professor of Neurology at the University of Vienna. He was born in Freiburg, Austria, in 1856 and graduated from the Vienna Medical School in 1880. He was always a deep thinker and voluminous reader. He did not neglect general scholarship on account of his medical studies. In fact, in his student days he cared more for art and philosophy than for medicine. Yet even in that early age he already made some contributions to medical science, the most important of which was his discovery of the anesthetic properties of cocaine. Later he became interested in neurotics and in order to learn how best to treat them, he went to Paris and became

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a pupil of the great Charcot, who was then acquiring an international reputation for his new ideas about hysteria.

This peculiar illness has been known from time immemorial. The symptoms have not changed much, but the theories about the etiology and the treatment were modified perceptibly. The old theory was that hysterics were possessed of the devil. The treatment then was simple: get rid of the devil and the patient was cured. Later, the Greeks thought that the uterus had something to do with causing the disease—hence its name. The cure then was not so simple, as not many ladies were keen on parting with their uteri. Galen, however, noticed that the male sex was also subject to hysteria. He, therefore, exonerated the uterus and blamed it all on the humoral misbehavior. In this theory he perhaps anticipated the modern auto-intoxicationists. Syndenham found the etiology in hypochondria, and Piso, in 1618, thought that hysteria was caused by some cerebral trouble. It remained for Charcot to prove that hysteria was not due to a somatic but to a psychic disturbance, though even he still believed that this psychopathology must rest upon some somatic substratum. He thought that to be some obscure congenital deficiency in the brain—a sort of degeneration. He introduced hypnotism in the treatment of hysteria. Charcot's theories were expounded by his pupil, Pierre Janet. According to Janet, "there exists in consciousness a region below the normal waking state— a sub-conscious. Groups of ideas may exist in this dark region without being known at all to consciousness and yet operating and producing results as if they were subject to voluntary attention. The synthesis of mental processes into a coherent whole constitutes the personality or ego. The hysteria process causes a splitting, a disintergration, or a doubling of personality. Hysteria therefore is a form of mental depression, characterized by the retraction of the field of personal consciousness, and by the tendency to the dissociation and the emancipation of systems of ideas and of functions which by their synthesis constitute the personality." Under the influence of the hypnotist, these rebellious dissociated ideas were persuaded to join the fold and reassociate themselves with the restored personality.

From Paris, Freud went to Nancy, where he spent two years under Bernheim in perfecting himself in hypnotism, suggestion and electrotherapy. Bernheim's demonstration that suggestion in the waking state was as effective as hypnotism gave a jolt to the "dissociation" theory. Why should a suggestion directed to consciousness make any impression upon the groups of ideas dissociated from it? Nor was Freud's analytical mind contented with this theory as an explanation of the etiology of hysteria. Why and how does this splitting of personality take place?

While Freud was studying Neurology at Paris and Nancy, his friend, Breuer, was making some interesting observations on hysteria at Vienna. Some of Breuer's patients derived no benefit from hypnotism or suggestion. But if they were allowed to dwell on the experiences at which a certain symptom first made its appearance, the effect was remarkable. At the recollection of the experience the patient would show a good deal of emotion and the symptom would abate. He also noticed that those memories were always of a character to cause the patient either shame, reproach or psychic injury; that at the time of their occurrence the patient did not give vent to his feelings, and that the more thorough the recollection and the greater the excitement, the more marked was the disappearance of the symptoms. These observations established the following theories: (1) That hysteria was not caused by some vague accidental splitting of consciousness in a defective mentality, but by a very definite etiology, a psychic trauma in

a normal person. (2) That hysteria would not have resulted had the patient given free play to his feelings at the time of the effect. (3) That by bringing the painful incidents back to memory, the pent-up emotions are able to discharge themselves. This heals the trauma and the symptoms disappear. This process is known as "catharsis." The question as to what causes the splitting of consciousness in hysterics was now answered by Breuer's important work; namely, trauma.

In 1886 Freud returned to Vienna and associated himself with Breuer. Together they practiced the catharsis method for some years. As Breuer was a busy internist, Freud did most of the work with the neurotics. He soon discovered that hypnotism was not an adequate method for producing a lasting cure through catharsis. Some of the patients became too deeply hypnotized, in which case the recollections would not reach consciousness, while other patients could not be hypnotized at all. Here an almost forgotten incident came to Freud's aid. At the Nancy Clinic, Bernheim once hypnotized a patient and ordered her to perform a certain act in the wakeful state. This the patient later obeyed, but she was not able to account for her action. Bernheim assured her that she did know the reason at one time and that with sufficient concentration she could recall it. And after considerable insistence on the part of the physician, the patient told him the reason. To Freud, this phenomenon now meant that the profound post-hypnotic amnesia was overcome by the patient's effort to connect or associate her action with the forgotten cause. The effort was aided by her wish to please Bernheim. Freud therefore reasoned that he ought to obtain similar effects with the amnesia of his hysterical patients. He tried it and the results were so encouraging that he substituted this "association" method for hypnotism. Later he evolved an important modification which he named "free association." In this revised method, the patient is not told to concentrate his mind directly upon the associations that exist between the symptoms and the forgotten trauma, but he is asked to give a free hand to his imagination and tell the physician any thought that comes to his mind. The modus operandi is briefly as follows: The patient, placed in the recumbent position is asked to close his eyes and relax his muscles. This relaxation enables the patient to concentrate more on his psychic activities. He is then asked to tell all he knows about his symptoms and their origin. The replies are usually incoherent and contain many gaps. The patient is then told to concentrate on the part where the story broke off. He is urged to tell everything just as his thoughts come up no matter how trivial or immaterial they may appear to him. Usually a good deal of persuasion is required to get the patient to tell all. Much resistance is shown by the patient to bring forth episodes causing him mental pain. With perseverance, however, the physician is able to overcome the patient's resistance and get to the bottom of the trouble. Some of the replies at first appear strange and meaningless. But upon deeper study, Freud ingeniously detected a meaning in the apparently most ridiculous and irrelevant narrative. He also learned to place great value on a mere slip of the tongue, slight variations in phraseology on repeating the same story, forgetting of names, dates and numbers. All these discrepancies he adds together and like a good detective constructs a clear picture of the patient's personality and of the etiology. The patient is then acquainted with the real cause of his trouble. At first he usually refuses to see it in the new light and if the revelation is connected with an episode which is distasteful to the patient's conception of ethics, his reaction is rather stormy. But when he is made to see the logic of the situation, he confesses, expresses his indignation with himself or others involved in the affair, and

after a stormy emotional "abreaction," the symptoms disappear. This process Freud calls "psychoanalysis."

The incoherent and fantastic stories the patients relate while being psychoanalyzed resemble greatly the fantastic works of dreams. Freud therefore undertook a thorough study of dreams. He began by analyzing his own dreams first. And as he suspected, he soon found out that his dreams, far from being meaningless and purposeless fabrications of a tired mind or an overloaded stomach, as the belief prevails, really possessed a very definite meaning and served a very important purpose. He then began to analyze his patients' dreams and a new realm opened up before his eyes. By studying his patients' dreams, Freud was able to learn his patients' personality, strivings and psychopathology more thoroughly than by the method of free associations alone. His profound classic on Dream Interpretations is a treasure-house of knowledge to students of psychology as well as to psychotherapists.

In this way Freud accumulated a vast amount of information about the life histories of nervous and normal people. Most of those facts had been entirely unknown to the person analyzed. Some of the incidents unearthed by Freud happened to the patient when he was only two years old. Upon this mass of material, Freud built up his new theory of hysteria which became the basis of his new psychology. Its applicability is practically limitless. Though only a quarter of a century since it was formulated and notwithstanding the abuse and condemnation of the opponents of Freudianism, its influence is already felt, not only in psychology and psychiatry, but also in anthropology, folk-lore, sociology, pedagogy, criminology and literaure. As early as 1907, Stanley Hall foresaw that this theory "is destined to be one of the most fundamental themes in the new psychology of art and perhaps still more of religion."

I shall first try to explain that part of the theory which is concerned with hysteria only.

According to Freud's theory, hysteria is not caused by a mere accidental caprice of a split of consciousness, but by an active and intense conflict between the conscious and the unconscious. The conflict begins when the unconscious is insisting on getting a certain wish, the fulfillment of which is impossible on account of social or religious prohibitions. The mere idea that such a wish could at all tempt the ego is very painful to consciousness. It therefore tries to suppress the knowledge of the existence of the craving. But the unconscious knows nothing of artificial obstacles and insists on making its wish known, which causes mental anguish to the ego. Neither of the two forces can give in. The impasse is broken by a sort of a compromise which converts the wish into motor or sensory symptoms of which the patient happened to have suffered at the moment the wish was born. The unconscious not being able to obtain the original wish is satisfied with the hysterical symptoms which symbolize the wish. The conscious ego on the other hand is glad to suffer bodily discomfort as long as the obnoxious wish is suppressed. Hysteria therefore is a dynamic conscious defense-compromise against the threatened attack by the craving of the unconscious.

For example: You are called to see hysterical Mrs. X, who is suffering from a severe headache for which she cannot account. You examine her physically and find nothing wrong. You try then "psychoanalysis." From a maze of incoherent details you stitch together the following important facts: The patient is a society woman. She enjoys golf. This morning she had to call on a bereaved acquaintance, but the headache made it impossible. This call was an unpleasant task. What happened? The conscious, the civilized part of the ego, wanted to make the call because it was the proper thing to do. The brutal, but honest sub-

conscious objected and wanted to spend the time on the golf-links. The conscious ego was horror-stricken at the manifestation of such selfishness and lack of social decorum. Whereupon it tried to completely crowd out this painful thought from the ego. But the unconscious preferred golf to a miserable time in the house of mourning, and would not allow itself to be brow-beaten by ethical considerations. A struggle ensues. A compromise is reached by making use of a headache of which the lady happened to have suffered on a similar occasion some time ago. Now the visit is called off ethically, and both sides of the ego are partly satisfied. (The conflict we speak of is not the one going on between the wish on the one hand and the restraining consciousness on the other. Such a struggle might cause other psychic disturbances. Hysteria is caused by that conflict which results from the continuous endeavor of consciousness to suppress and deny the knowledge of the existence of the pain-giving desire, and the equally determined effort of the unconscious to force its wish to the front.)

Now if the physician were to explain to the lady the real cause of her headache, at first she would be indignant at his impudence for daring to ascribe to her such meanness. Upon being convinced, however, of the truth of the analysis, she would feel ashamed at her own shortcomings, but the struggle between the conscious and the uncouscious would be at an end. Instead, the lady would have to face the issue frankly: "I do not wish to pay that call, but convention demands the sacrifice. If I do not obey, will I be able to stand the punishment of society's displeasure?" Whatever her decision, the hysterical headache would be cured by the analysis.

To be sure, not every case of hysteria is as simple as this one. On the contrary, the average case is usually very complicated, both as to etiology and symptomatology. Freud spends about one hundred hours in analyzing a single case. Some cases take longer, depending on the nature of the cause and the character of the patient. For despite the fact that the patient comes for relief and is willing to tell the physician everything, she is not always able to overcome the resistance of the conscious. A great deal of tact, sagacity, learning and patience is required by the physician to lead the patient on, step by step, to the crucial point.

And here it might be remarked that while every cultured physician ought to make an effort to understand Freudianism, no one should undertake to practice psychonalysis unless he is thoroughly trained in neurology and psychiatry as well as in general medicine and diagnosis. One who just reads a book on Freud and practices psychoanalysis is about as safe a man as if he were just to read Cushing and try to do brain surgery.

But coming back to Freudianism which so far sounds rather dull and "respectable," the question might now be asked, if hysteria is due to a conflict between the conscious and the unconscious ego, why are we not **all** hysterical, for surely such conflicts must continually go on in every one of us? This question is answered by the second and more exciting part of Freud's theory, namely, that hysteria as well as any other psychoneurosis or psychosis can take place only in a person whose sexual life is not normal and who in addition, some time in his infancy, sustained a psychic injury which was also connected with sexuality and which he had long ago forgotten. In a normal vita sexualis, there can be no psychosis or neurosis.

This is the Freudian law which evoked so much opposition. But distasteful as this principle might appear to some, we as scientists should deal with facts only and not with personal prejudices. (Unfortunately, even some physicians are unable to discuss sexual questions objectively.) And the facts are that in every case

of neurosis and psychosis analyzed by Freud and his followers, a sexual complex was invariably found to be the most important etiologic factor. Freud, with his innate thoroughness elaborated this theory and showed that the libido influences the character and behavior of everyone. Other important factors are fear, hatred, jealousy, envy, and religious and social restraints, or environment.

The world is a battlefield. All creatures are engaged in a struggle for existence. The struggle is intensified by the fact that what is life for one is usually death for the other. In the plant and animal world we see how the weaker must perish if necessary in order to satisfy the needs of the stronger. These needs are self-protection and reproduction, or food and sexual gratification. The needs of the human race are essentially the same though more complicated, but their achievement does not depend entirely on individual ability and strength. Society to protect itself has checked most of the striving of the individual. He must not take food as he finds it. He must not kill anyone that happens to be in the way. These prohibitions and taboos have been piling up for thousands of years. In addition to negative commands, society places upon the individual many positive duties. The normal person is usually able to adjust his desires with the demands of civilization. Family influence and environment are helping him to learn self-control from childhood on. He grows up with the realization that being a member of society he must sacrifice some of his wishes for the good of the whole of which he is an interested part. So that ordinarily it is not very hard to obey the rules of society, especially when one is in hope of getting some reward for his nice behavior. The reward which may be real or imaginary serves the purpose of compensating the individual for his sacrifices.

It is different with the sexual desire. And when Freud speaks of sexuality he does not mean only the gross sexual act of coitus, but he refers to the whole complicated subject of sex-life as it manifests itself in normal and abnormal acts and feelings, originating in the erogenous zones. There is no other wish which is so intense as that of the sex; no emotion which is able to accomplish such tremendous changes in the life of a person as what is known as love. But while other emotions like hunger and fear can be satisfied with comparative ease, the sexual wish has been made almost unapproachable. From time immemorial, restraint upon restraint were added by society, religion and superstition. Not only the act itself came to be looked upon as degrading (unless sanctioned by a preliminary rite), but even the very wish is considered something to be ashamed of, and discussion about it has been relegated to the smoking-room. As we know. all these taboos have not eradicated the emotion. They only succeeded in making some people ashamed of themselves for possessing it. But the emotion does exist. The child is born and grows up with it. To be sure, the love-object is not always the same.

At first the infant is auto-erotic, that is, it derives all pleasures from its own body. A thumb in the mouth, stroking the genitals, rubbing the gluteal region, a formed stool passing through the anus are all sources of sexual pleasure. Later the child begins to become interested in persons around him, first in those of his own sex, on account of the similarities of the bodies. Then there is a latent period, from the fourth year to puberty. During this period the homosexual libido is sublimated in friendships, games, clubs and other social activities of the same sex. At the same time, the scattered love-charges of the whole body slowly gather around the genitals. When this period is over, the intensified love impulse is directed to the object of the opposite sex. As these changes occur, the previous stages

are not destroyed, but remain suppressed in the unconsicous from where they can emerge again in certain conditions. Now, if the heterosexual object is attainable, all is well. Trouble starts only when this normal course is blocked by real or psychic barriers. Even then there are still left several solutions. The most desirable one is sublimation. This consists in plunging ones self completely into religion, science or some movement for the betterment of the race. I have personal knowledge of hundreds of normal young men who were free from libido for many years. They belonged to two extremes: some were mystic Talmudists, the others, atheistic social-revolutionists. It is obvious that this solution can be utilized by comparatively few; saints, philosophers and idealists. The ordinary person must find other means. One is symbolization. A symbol in this case is a substitute for a missing beloved object. A little boy is anxious to ride a pony. If he cannot get it, a broom-stick serves the same purpose. An old maid craves a child and derives satisfaction from bringing up a cat and fighting vivisection. We find the influence of symbolism everywhere: in the myths and beliefs, arts and plays, dreams and rituals of all races and of all ages. And the ability of the mind to creat and make us symbols has been of great value to civilization.

Those whose libido is not satisfied by symbolization make use of the repressed but still existing inclinations toward homosexuality. This regression normally lasts only as long as he or she is deprived of heterosexual life. As soon as the heterosexual object becomes available, narcissism and homosexuality are no longer able to satisfy the libido. But as is frequently the case with somatic organs, here also a fixation or an arrest in the development may occur in any one of the above-mentioned stages. This is caused by some psychic trauma as rape, witnessing the sexual act, etc. Such a fixation would result in a disposition towards narcissism or homosexuality in the later life of the individual. Depending upon the degree of fixation, the regression may vary from a mere preference to an absolute need. The effect of the regression upon the personality and behavior of the individual is also variable. Some are entirely indifferent and no conflict takes place in their ego. Others are markedly affected by their inability to perform the normal sexual act and suffer much from an "inferiority complex." To overcome this sense of inferiority, the homosexual will display proud, arrogant and selfish characteristics in his behavior. If the patient is not able to keep up the fight and yields to his perverse cravings, his behavior is characterized by a slouchy carriage and indifference to public opinion. The first type may terminate in paranoia, the second in dementia precox. Between these two extremes are found a multitude of cases of psychoneurotics of various degrees, and whose peculiar behavior betrays their true ego. To these classes belong most of the anti-vice crusaders, violent opponents of modern art and literature, self-appointed defenders of "pure womanhood," negro lynchers, Jew-baiters, heretic burners, war-makers, prize-fight enthusiasts and a host of other torturers or sufferers by choice.

That cruelty and the sight of blood are powerful aphrodisiacs was known long before Frued. Nor is sadism an exclusive human weakness. Impotent monkeys and even some lower animals use torture as a sexual excitement. Freud, however, has proven by psychoanalysis that practically every cruel act is motivated by some sexual complex. To fully appreciate the value of this discovery to the student of anthropology, one must read Frazer's works on Folklore and Freud's book, "Totem and Taboo." I can only mention here a few significant facts: The religious festivals of the ancients would start with human sacrifices and end with sexual orgies. Similar celebrations

are still common among present-day cannibals. Maybe that is why the commandment, "Thou shalt not commit adultery" follows "Thou shalt not kill." As people advance in civilization, their cruel inclinations are tamed by sublimation; instead of human sacrifices their thirst for blood is satiated by killing oxen and lambs. When a higher stage is reached, wine and bread take the place of blood and flesh. But every now and then a regression takes place and human sacrifices are again resorted, though under a different designation. This time it is the Moor, the Jew or the heretic that feeds the flames of faggots and of sexual passion. In our own days when roasting heretics is out of style, we get a thrill by burning negroes or killing Germans.

Of course, such explanations are very painful to certain religious and romantic souls. And to defend themselves against this psychic suffering, they attack Freud. And they may be perfectly honest in their opinion, because they really are unable to understand him. The conscious censor takes care of that. To them it is more pleasing to believe that the burning of heretics was meant for the victims' own good, and that the war was fought for altruistic reasons. Even Freud will admit that these good souls are honest in their protestations. But to the impartial and the emancipated mind, the traditional explanations are inadequate. To believe that the glory of a merciful God will be augmented by the burning of his children, or that humanity will be purified by shoving bayonets into the hearts of fellowmen, may be delicious but it is not rational. Freud's theories on the other hand are extremely unpleasant, but they do offer adequate explanations. Furthermore, they have been verified repeatedly by psychoanalysts. And one who is not afraid to give up fanciful ideas for rational theories, will derive from this modern philosophy sufficient enjoyment to compensate him for the feeling of mortification caused by a superficial acquaintance with Freudianism. Upon a deeper study of this new psychology his outlook upon life will widen, his mental horizon broaden. Instead of dividing mankind into whites and blacks, Christian and heathen, good and bad, he will learn to regard humanity as one big family consisting of children of different ages, strength and ability; all of them handicapped in various degrees, some less, others, little or none at all; and some from sheer exhaustion falling down to a lower level either to try again or overcome by despair to remain fallen. Such a philosophy of life frees one of impatience with his weaker fellow-men. It stimulates optimism and encourages one in his endeavors in behalf of progress. Darwin's service to humanity as a whole was indefinitely greater than his achievements for biology. Freud's contribution to civilization is of infinitely higher value than his aid to psychopathologists. Both Darwin and Freud have helped the mind materially to liberate itself from the shackles put upon it by fear, ignorance and prejudice.

Darwin discovered the descent of man.

Freud discovered that there was no indecent man.

NON-SURGICAL BILIARY DRAINAGE

By ELLIOTT C. PRENTISS, M. S., M. D., El Paso, Texas.

In this paper I will report observations made on cases of biliary infection by means of the method known as non-surgical biliary drainage. It is not intended as a systematic treatise on the subject. In this method a small duodenal tube is used which has a perforated metal tip on the end of

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it. This is swallowed and the tip is allowed to pass into the duodenum. Then a solution is used that relaxes the sphincter of Oddi, and drainage is accomplished by means of suction. My methods and opinions differ in some respects from those of others, but I will not take your time in trying to correlate them.

Several tips have been used. The Einhorn tip, being rather light, took a long time to enter the duodenum. The Rehfuss tip, which was a little heavier and passed sooner, came into general use. The tips now being used most are those of Lyons and Palefski. These are heavier and pass the pylorus more quickly than the Rehfuss tip.

In using this method it is necessary for the patient to lie on the right side for a considerable time without change of position, and on this account it is advisable that the bladder be emptied before the insertion of the tube. The patient should come to the office in the morning with nothing in the stomach, unless you should have something definite in view by changing this factor.

I generally have the patient gargle with a solution of novocaine in order to diminish discomfort in the throat. The tip is placed in the back of the mouth, and the patient is directed to swallow it while drinking a glass of water. The tube is inserted only to the 50 cm. mark. You will remember that the average distance from the teeth to the cardia is 40 cm. At 75 cm. the tip should be near the end of the duodenum. These measurements vary somewhat with the height of the individual. With tall patients a greater length of tube must be used.

After the tube has been swallowed the patient lies on his right side, and then it is gradually introduced to the 65 cm. mark. Unless the patient be unusually tall this will permit the tip to enter the duodenum, at which time bile may be obtained by suction. We must not be misled by bile that has regurgitated into the stomach. After some experience, by using care, we can usually readily tell when the tip is in position.

When there is no pylorospasm or mechanical obstruction of the pylorus, the tip generally passes in about fifteen minutes. The Einhorn and Rehfuss tips take considerably longer.

When pylorospasm is present, 1-50 grain of atropine will sometimes hasten the passage of the tip, as will also a glass of hot water.

There are a number of factors that seem to delay the passage of the tip into the duodenum, by producing pylorospasm. Frequently when this exists, water seems to pass readily out of the stomach, but the tip, as a foreign body, will not.

Nervous influences are of considerable importance. If the patient be worried, or is nervous, or has just had something disagreeable happen, the tube frequently cannot be made to pass at all.

When the patient has much soreness in the gall-bladder region with adhesions, frequently sufficient pylorospasm will result to greatly delay the passage of the tip, or even prevent it. Under treatment, as the patient improves, the above mentioned pylorospasm should gradually diminish and allow the tip to pass more quickly. This is what occurs in clinical work, and I have noticed it repeatedly.

A few notes on anatomy and physiology are advisable in view of what follows. In embryology the growth of the gall-bladder is like that of a diverticulum, or a modified bile duct. Its capacity is only about 30 c. c., or 5% of the total output of bile in twenty-four hours, which is from 500 to 1100 c. c. It has a scanty musculature of poor contractile power. McCaskey (1) states that the muscle of the gall-bladder is capable of at least partially emptying that organ. Alvarez (2) believes that the emptying of the gall-bladder is due to pressure in the common duct being lowered by relaxation of the sphincter at the duodonal end. The sphincter of Oddi has muscle fibers both in and around it. Authorities

state the pressure necessary to overcome it at from several hundred to 675 m. m. of water.

When the tip is in proper position in the duodenum it is advisable to insert a solution that when it comes in contact with the papilla duodenalis will relax the contraction of the sphincter, thus permitting the bile to flow freely into the duodenum. The one that seems to have the greatest effect is a 25% watery solution of magnesium sulphate. Hollander (3) states that a solution of peptone will have the same result without the undesirable laxative effect.

I have noted sometimes that when the bile has apparently ceased to flow following the use of magnesium sulphate, the taking of a glass or two of hot water into the stomach will cause it to begin again.

I believe that the sphincter of Oddi is more susceptible to nervous influences than is the pylorus. In some cases under nervous influences the bile would only flow very slightly or intermittently, when I knew that the tip was in the proper position. At certain times solutions used to relax the sphincter would have only very slight, or even no, effect.

It is generally recommended to insert the solution directly into the duodenum through the tube. I frequently have the patient drink the solution. This is slightly disagreeable, but I believe usually gives a more certain and satisfactory result. I then wait ten minutes before making the first suction, and then suck only 20 c. c. at a time. The solution readily passes into the duodenum.

It is usually recommended to use 80 c. c. of a 25% solution of magnesium sulphate. Lately I have generally used only 25 c. c. at the first time. This is frequently all that is needed. If the flow of bile ceases before I think drainage is completed, I repeat the same amount of the solution. In this way less catharsis is produced, and I feel that the drainage is more complete.

Sometimes when drainage has stopped before it is apparently completed, the taking of a glass of hot water will relax the sphincter and permit it to begin again.

It is generally recommended to suck out the bile that collects every five minutes. I have varied this by using more or less continuous suction, on the basis that a minus pressure should help to overcome a tendency to closure by the sphincter, or make its opening more complete. This has been borne out by the results, as I have carefully watched the effects of the two methods.

I might mention two points of interest here. I use the Lyons tip. This is elongated, has a round hole in the end and four logitudinal slits. It is difficult for the mucous membrane to stop up all of these holes. The Palefski tip, on the other hand, is round and has only two round holes on opposite sides. These become readily closed by the mucous membrane when suction is used, consequently the results of suction are not satisfactory, and it is easy to use enough force to injure the delicate tissues.

The syringe I use is a rather long narrow one, with a rubber plunger, that holds two ounces. The bile acts as a lubricant to the plunger, and it is easy to avoid using much force when the pull on the handle is released. I leave 20 c. c. of air space in the syringe to reduce the force of suction.

In my experience it does not require very much suction when constantly applied, to relax the sphincter. Several hundred to 675 mm. of water pressure are not a great deal to overcome.

Care must be used to avoid sufficient force to injure. I have never caused any bleeding, and have never had any reason to think that this method has injured the patient.

Sometimes after constant slight suction there will be a sudden spurt of bile, after which, on several occasions, as much as an ounce and a half or two ounces have been rapidly withdrawn.

In doing a drainage I use suction

every five minutes, noting at the end of each interval the amount and description of the bile, making the suction continuous, except for the time required to empty the syringe and make notes.

When there is no spasm of the pylorus or sphincter of Oddi and the bile flows well, the whole procedure takes about two or two and a half hours. When there is spasm of the pylorus or sphincter of Oddi the time required is, of course, lengthened.

Observation of the bile obtained is of both interest and value. After drainage is completed about 5 to 7 c. c. may be withdrawn every five minutes if the sphincter remains open. This evidently represents the rate of formation of bile and pancreatic juice, as both are sucked out at the same time. Any amount above this is evidently the withdrawal of bile already in the liver and gall-bladder.

Normal bile is of a sparkling golden color, and is clear. Any departure from this is abnormal, and represents altered physiology of some kind. It has not been demonstrated that a solution of magnesium sulphate, as used in this method, can alter the character of bile. Normal bile may be obtained from pathological cases, but the converse probably does not hold true.

In treating cases of liver infection, soon after drainage begins it is customary to get a rather thick, very muddy and opaque bile, which is yellow, rather than a golden color. This frequently contains a great deal of mucus. Sometimes this will turn green quickly after being removed; at other times this will occur only after several hours. Sometimes the bile, whether muddy or otherwise, is definitely greenish when it is removed.

I have frequently noted, during the process of drainage, that there will be intervals during which the bile seems to be normal (this alternating with muddy bile. I believe that the explanation of this is that there is slight or decided stasis in some of the liver ducts, and none in others. In such cases I have obtained as much as four ounces of muddy bile from a patient, when I did not suspect more than a slight enlargement of the gall-bladder; all of this muddy bile probably did not come from that organ.

The work that has been done during the past few years has demonstrated that stasis of bile in the liver ducts is of more importance than it was formerly thought to be.

A number of physicians doubt the possibility of emptying the gall-bladder, or nearly so, by this method. I believe that it is not only possible, but that it is generally done, when the drainge has been apparently satisfactory. I have seen several instances in which I was positive that the gall gladder had been emptied, and will cite one.

This lady had been ill for some years with various abdominal affections. On examination, she had definite evidence of infection in the gall bladder and liver, with adhesions in the region of the gall-bladder and duodenum. The x-ray showed a faint shadow in the region of the gall-bladder but no stones, and the duodenum when full showed a slight concavity just in the region of the gall-bladder, where that organ was evidently pressing on it. It was evident that the gall bladder was moderately dilated. The first two drainages were not perfectly satisfactory, owing to pylorospasm and spasm of the sphincter of Oddi. The third one progressed satisfactorily. After the muddy bile had begun to flow, on using gradual suction, I was able to rapidly obtain about two ounces of a colorless, slightly gelatinous fluid, that quickly began to turn a light green. In a half hour it turned to a marked green color. That was about the amount we had estimated the gall-bladder in this case held. When bile is retained for a considerable time in the gall-bladder coloring matter and water are absorbed and mucus is secreted. This corresponds with the fluid obtained. It did not come from the stomach, as that had been emptied. The rapid change in

color suggested a content of coloring matter that was capable of rapid oxidation. After this fluid had all been sucked out, the muddy bile again appeared.

The method of biliary drainage is of course only one part of the treatment of these cases. It has its effect in two ways; by the removal of stagnant, decomposed bile with consequent probable improvement of bile formation, and by removal of excessive numbers of bacteria, which tends to diminish existing infection. These factors obtain to a greater or less extent, practically no matter what is the cause of the infection. It has been shown experimentally that bacteria introduced into the liver and gall-bladder through the portal circulation do not grow to any great extent, when bile is formed in normal amounts and there is no stasis.

In some of these cases adhesions no doubt interfere in varying degrees with the onward flow of bile. Another factor is that in cases of biliary infection bile is formed in subnormal amounts, and is sometimes thicker than normal, both of which factors would tend towards stasis.

A few years ago these cases were referred to as cholecystitis. It is evident that in many, or most of them, the gall-bladder infection is only a part of the trouble. Any diagnosis that does not give serious consideration to infection of the liver ducts, does not go far enough.

If we can by means of this method, and whenever we wish to do so, drain all of the bile out of the liver ducts and gall-bladder, we have a means at hand of improving or curing a condition, against which formerly we were peculiarly helpless. Of course, when gall-stones are present, they should be removed by operating, but even in these cases, when operation had been refused, I have seen decided improvement result.

What is accomplished by surgical drainage in thees cases? Stagnant bile is removed from the gall-bladder, when that organ is not excised, and then by means of a tube, left in the gall-bladder, drainage of bile may be secured for a considerable time, if desired. This of course gives good drainage. When the tube is removed, and the patient has recovered from the operation, drainage frequently is no better than it was before.

We all of us know that the surgical results in these cases are sometimes very unsatisfactory, and the explanation probably is not only the leaving in of an infected gall bladder, but the continuing of the infection of the biliary ducts.

The conclusion drawn from this is that these patients should have very careful post-operative attention, and that the operation should be considered only the beginning of treatment.

The results of treatment in these cases are frequently very good, and in many of them, surprisingly so. I have seen considerable improvement, or even cure, in some cases in which I felt that operation offered the only probability of relief.

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WHAT SHALL THE INDUSTRIAL SURGEON OF THE SOUTHWEST REGARD AS "TRAUMATIC HERNIA"

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Traumatic Hernia, as the name implies, is a hernia actually produced by trauma; or, to be explicit, an external force exerted upon the tissues and injuring them to the extent that the abdominal contents protrude.

Statistics show us that this is an exceedingly rare condition; person-

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ally, I have seen but one case in my experience, when a miner was crushed by a large mass of rock, a corner of the rock penetrating the left inguinal region and the intestines being forced through the opening in the abdominal wall by the weight of the rock upon his body. He was dead when I saw him, so that compensation for his hernia, per se, did not interest me, and I do not believe that we, as industrial surgeons are particularly interested in true traumatic hernia. What we are interested in, and what we really want to discuss is, occupational hernia, or a hernia that occurs incident to, but in no case directly due to, one's occupation. It is the hernia which the French style as a "hernia of effort," and, in my opinion, is due in every case to an abnormality of the anatomical structures making up the inguinal canal, the tissue surrounding it or a combination of both; most commonly, to the existence of a potential hernia, which exists from birth and has a pre-formed sac.

In order to illustrate these points clinically I will briefly outline three cases actually encountered in my industrial work.

CASE 1

J. M. Case No. 14997. American male 29 years of age, a swing foreman, Elisa Mine, appeared August 18th, 1924, stating that on August 10th, 1924, he was helping a car man cage cars and felt a stinging, stretching pain in his left side. Diagnosis: direct left inguinal hernia. Interned, and at operation the following day, we found the musculature weak and frayed out, there being no well defined sac. The outer border of the rectus muscle was sutured to Poupart's ligament. Uneventful recovery.

This case illustrates the weakness or abnormality of anatomical structures.

CASE 2—

B. M. Case No. 12402. Mexican, male, 39 years of age, motorman Capote No. 2 Mine, appeared July 9th, 1923, stating that the day previous he was lifting a car and "the hernia came down." Diagnosis: indirect left inguinal hernia. Interned July 10th and at operation next day we found a very small sac to which the vas deferens was adherent posteriorly necessitating dry gauze dissection to separate it. Classical modified Bassinni operation. Uneventful recovery.

This case illustrates the preformed sac; otherwise it would not have been adherent to the vas.

CASE 3

P. B. Case No. 14782. Mexican, male, 30 years of age, timberman Oversight Mine, appeared July 5th, 1924, stating that on June 30th, 1924, he "was lifting a heavy timber and felt a burning pain in the groin." Diagnosis: Left indirect inguinal hernia. At operation two days later we found a very much thickened sac the size of a Bartlett pear, the neck of which showed a hard thickened ring where it had "see-sawed" through the internal ring for several years at least. The sac was adherent to the vas deferens posteriorly. Uneventful recovery. This man had evaded physical examination up to this time which accounts for the fact that we had not discovered his hernia which no doubt had existed for years.

This illustrates an advanced stage of the preformed sac plus a willful effort to make the employer responsible.

These defects in an individual workman are certainly not the fault of his employer, nor are they the fault of the individual himself, who is the sufferer and who loses, temporarily, his means of earning a livelihood.

The human body is the most wonderful and most perfect machine ever invented and manufactured when it is perfect; but, unfortunately, the original model has been greatly changed, having been turned out by so many different factories, some of which, owing to a changed environment, mode of living, disease, etc., have produced not the original model, but a very inferior type of machine, and I think the individual with the anatomical defects and the potential hernia is an example of this inferior type; and herein lies the fault.

If we agree that the employer is not at fault in the matter, he certainly should not be obliged, legally or morally, to compensate the unfortunate workman who acquires a hernia of this type. Nevertheless, these hernias accur in industry and constitute the problem we are called upon to solve. We must face the situation fairly and squarely and definitely de-

termine just what we are to do in the future.

It seems to me that the physical examination of all old as well as new employes, is the means to the end and, I would say at this point that if a careful and rigid physical examination of employes is not routine practice in all the industrial concerns in our territory, it should immediately be made so.

By a physical examination we can determine existing hernias, and if found in an old employe, we can insist upon operation for repair or his dismissal; if found in an applicant for employment, we can refuse to employ him or at least demand surgical repair of the hernia, before he is allowed to go to work. We cannot, however, determine a potential hernia, nor a predisposition to hernia due to weakness or abnormalities of anatomical structures; therefore, we would have to allow these individuals to go to work; but, if they developed an occupational hernia, we would be obliged to repair it surgically, paying the workman one-half pay during the period of his disability, but **no compensation,** unless the repair was unsatisfacotry and the hernia repeatedly recurred.

If the workman refused surgical repair, he should have no redress, unless his refusal was justified, based upon the fact that he was suffering from some intercurrent disease, which, if the physical examination had been thorough, should have been discovered previous to his employment and the applicant disqualified.

SUMMARY

1. True traumatic hernia should be compensated.

2. Occupational hernia should **not** be compensated, excepting in cases of repeated recurrence, but should be surgically repaired at the expense of the employer, with payment of one-half pay during period of disability.

3. Physical examination must be rigidly and painstakingly carried out; it is the key to the situation.

4. Forget the word "traumatic" and use "occupational" in speaking of hernia in industry.

It is recommended that a committee be appointed from members of our Association and supported morally and financially, to institute a campaign to revise the compensation laws in the states in our territory along the above lines, with a view to giving both the workman and the capitalist a fair deal; and with such a mutual understanding incorporated in the law that the innumerable law suits, with the accompanying useless expense to both sides will be permanently done away with.

In closing, I want to quote the section of the Compensation Law of the State of Sonora, Mexico, governing hernia.

"Art. 17:

"In case of hernia, the operative must plainly prove that the injury is of recent origin, that its appearance was accompanied by pain, and that it was immediately preceded by some extraordinary physical effort made in the execution of his employment or labor. This being proven, the employer shall have the obligation of furnishing him with hospital and medicines, if needed, and medical attention, and of providing for an operation for the cure of the hernia, if the patient elects to have such operation, either in the Hospital of the employer or in another of the employer's choosing and likewise of paying him an indemnity equal to 50 per cent of his average weekly earnings for a period not exceeding four weeks. In case the operative elects not to be so operated, then the employer shall have no further responsibility in the matter. If the death of the operative should result from the operation, or from strangulation resulting from failure on the part of the operative to undergo the operation, the employer shall not be obliged to pay any indemnity for the same."

Note:

A "working week" consists of six days.

Maximum weekly earnings considered under the law in computing indemnities is thirty pesos O. N., or approximately fifteen dollars U. S. currency.

A STEP TOWARDS THE PROLONGATION OF LIFE*

A. W. VANNEMAN, M. D.

Science assures us that the human body is easily capable of lasting one hundred and fifty years. In striking contrast to this is the cold, statistical fact that in all history there have not been a score of authenticated cases that have reached one hundred and fifty years.

In seeking the cause of this appalling discrepancy between the age that we are capable of attaining and the age that we really attain we find that more than fifty percent of human deaths are due, either directly or indirectly, to digestive troubles. It behooves us, therefore, to consider seriously this digestive proposition and endeavor to discover wherein errors are committed and in what way these errors may be corrected, with the hope of doing our bit towards consummating that highest desire of the human race—the desire to live long, happily and usefully.

It will not be amiss to review a little of our ancient physiology.

Briefly stated, the digestive tract is made up of several stations connected by tubes and gateways, each of which stations has its particular part to perform in the digestive program. The mouth first receives the food and, by mastication, reduces it to a semi-liquid pulp intimately mixed with saliva, which changes the starches into malt sugar, and gives emolliency that is necessary for its passage to the stomach. The insalivation of the food tunes the stomach so that it is ready to receive it. By means of the hydrochloric acid, pepsin and rennet of its gastric juice the stomach attends to digestion of the proteid, or albuminous part of the food.

Normally it requires about three hours for gastric digestion to be completed. The food is then passed, in an acid condition, into the duodenum or first part of the intestinal tract, where it is rendered alkaline, has its starches and proteids further digested, its fats emulsified and its sugar and salts split up so that they may be absorbed. These intestinal changes take place through the action of bile from the liver and pancreatic juice from the pancreas and erepsin and enterokinase from the walls of the intestine.

Absorption is begun in the stomach, but is principally accomplished in the small intestine and somewhat in the large intestine. From four to seven hours are required for intestinal absorption and digestion. Each of these digestive steps is essential and anything that interferes with any of them opens a way to discomfort and disease. Interference is repeatedly and habitually committed; indeed, it may be said that a strict observance of biological living is so rare that few know of it and fewer still would practice it were it known to them. Like every other road to high attainment, the way is straight, exceedingly narrow, and demands much sacrifice of him who essays to travel it.

Food serves two purposes—to build up the body and keep it built up, and to supply heat and energy. It may be classified as:

1. Proteid, represented by meat, eggs, nuts, and the gluten of starch. These substances build and repair.

2. Carbohydrates, consisting of starches and sugars, which, together with,

3. Fats, supply heat and energy to the body.

4. Water, which acts as a diluent and menstruum for the others.

5. Vitamines, which are formed by the action of sunlight on the chlorophyll of plants and also appear in raw meats and milk, and serve as activating agents.

In order that food may be properly utilized certain conditions must be observed. Apart from the selection

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of the kind, due regard must be given to the quantity, variety, temperature, frequency and the mental and physical condition of the person consuming it. As a rule, the quantity consumed is in excess of the amount required to keep the body and mind in a state of efficiency. No fixed rules can be given, since the amount one eats depends upon the personal equation, age, weight, character of employment, etc. There are cogent reasons for the two-meal-a-day system, but the American three meals seems more popular with us. Inasmuch as from five to seven hours are necessary for the completion of the digestive process, it is reasonable to assume that at least five, or better, seven hours, should elapse between meals. The habit of "piecing" is a pernicious one and will ruin any stomach if persisted in.

Variety, up to a certain point, quickens the appetite; but the tendency of the modern table is to exaggerate it. A full course meal has enough fish for the seven stomachs of a whale, herbs and grains to satisfy the four stomachs of a cow, nuts and fruits sufficient for a monkey, and meat to appease the appetite of a ravenous bulldog. A variety sufficient to fill the physiological requirement ought to be enough.

It has been demonstrated that digestion does not properly proceed unless the temperature of the food is at or near the bodily temperature; also, that it is seriously retarded by fatigue, and the emotions, like worry, anger, fear, grief, etc.

Along with foods, or separately, many poisons get into the digestive tract. Some are taken knowingly and many get in innocently. The most common ones are tea, coffee, tobacco, liquor, the condiments, microbes of all kinds, and spoiled foods. Were it not that our bodies are supplied with a very competent system of defense, life would be impossible. The blood that carries nourishment to, and effete matter from, all our tissues, is supplied with elements that are constantly attacking and destroying or neutralizing bacteria and bacterial poisons and other deleterious substances that happen to get into the circulation. If the blood defenders become overtaxed our resistance is gone and we die from blood poisoning. The most important line of defense is offered by the liver, which is able to destroy almost any poison that comes to it unless the amount is overwhelming. Even rattlesnake venom may be swallowed with impunity if there are no breaks in the mucous membrane of the digestive tract before it reaches the liver. One with bad teeth or ulceration of mouth or stomach would place his life in jeopardy in sucking the poison from a snake bit wound; otherwise it is a safe and proper procedure.

The versatile liver aids in concluding digestion as well as removing anything from the food that is harmful. It also will hold onto poisonous substances until they become harmless unless they are too strong for it to handle. It removes nicotine from tobacco, caffeine from coffee, theobromine from chocolate, and detoxicates and neutralizes the indols, skatols and other poisons of putrefaction that occur in the bowels, and which otherwise would cause ptomaine poisoning.

The kidneys, thyroid gland, skin, gastric juice, and lungs also have a part to play in defending our bodies, a part which they do well unless they are overcome by the amount or virulency of microbe or other poison. The part that diet plays has been well worked out so that any candidate for a hundred and fifty years of existence may easily formulate a method.

The program of one who practices biological living is somewhat as follows:

At six a. m. he rises and immediately, while still warm from his bed, takes a cold shower or plunge bath, which in ten seconds sends his blood hurtling through his body, awakening every tissue to activity. A warm bath would do just the opposite. After a brisk rub he takes his

daily dozen or other playful exercise. A phonograph record has no advantage over an axe or a washboard. A glass of cool water taken sufficient time before brekfast for the reaction from the cold to take place, prepares his stomach for the breakfast which he approaches with a serene mind and a good appetite. The cereal he masticates thoroughly, Fletcherizing each mouthful by twenty-three chews, which insures thorough comminution and insalivation. No sugar or cream or other liquid is added to the cereal or taken in any way until the close of the meal. Sugar is not digested in the mouth or stomach and, for the most part, only serves to cause fermentation and distress in the bowel. Liquids of any sort interfere with insalivation. The gluten of the cereal, or a soft boiled or poached egg, or a handful of nuts, provides him with all the protein that he needs. A ripe apple or other fruit furnishes him with sugar, water, and vitamine. The meal terminates with a glassful of whole milk, which he swallows slowly in order not to chill the stomach and also to permit its acid reaction to be somewhat neutralized. Scrupulous care is given to the freshness and purity of the milk, but it is never boiled or Pasteurized. Pasteurization and boiling spoil the flavor, kill the vitamines and change the entire character of the milk, rendering useless, as a food, our most valuable food. Someone has said that if the Creator intended that milk should be boiled or Pasteurized, He would have added a double boiler to every woman's breast.

Following breakfast he follows some leisurely and agreeable occupation for an hour before beginning the strenuous labor of the day. With equal care as regards his mental and physical condition, he goes to his other meals—not forgetting the glass of cool water an hour beforehand. Dinner consists of baked or raw vegetables, fruits, nuts and milk. Supper is the lightest meal of all. Nothing is better than rice and fruit and milk. Rice only requires one-third of the time for digestion that other cereals require. Three hours should elapse before he retires to bed. These three hours are best employed in agreeable pastime—the pleasant pastime of agreeable companionship being the best. The cares and troubles of the day are thrown aside and left on the dump until eight a. m. the following day. Since our hero expects to spend some fifty years in sleep, he should go to bed with nothing going on in his abdomen except undisturbing absorption and nothing in his head except a happy, sleepy feeling that assures eight hours of tranquil, blissful, dreamless sleep that rests and refits him for the demands of the next day.

Compare this simple, biological method that carries a man a hundred and fifty years, with the system, or lack of system, of our ordinary business man. From a restless bed he jumps into his clothing, scarcely taking time to bathe his face and hands. He hurries to the table, where he is presented with a glass of ice water that inhibits both buccal and gastric digestion for at least half an hour. He covers his cereal with indigestible sugar, slops it with milk and gobbles it down with scarcely a pause for mastication and insalivation. He usually washes his mouthful down with narcotizing coffee that heaps work on kidney, liver, suprarenals, heart and nerves. He eats his hot cakes galvanized with indigestible grease from the briddle and adds a grease from the griddle and adds a which he floats the cakes. Following these he presents his already knocked out stomach with some armor plated fried ham and eggs and potatoes and terminates the combat with another cup of narcotic that contains no food value except the water that is in it; or gulps down another glass of ice water that freezes out whatever hope may be left in his poor stomach. He then lights a cigar that narcotizes and poisons every tissue in his body and rushes to his office and wonders why he cannot concentrate

his mind on his work, and why everybody and everything is wrong. It is needless to go through the rest of his day; suffice to say he lives on soups that stimulate, but do not nourish; meats that decompose and putrify, overload and poison heart, liver, kidneys and ductless glands, and which muddy and pimple his complexion, and condiments and stimulants that may give transient satisfaction, but which in reality are just so many nails in his coffin which he makes for himself and which he may expect to fill before half his allotted one hundred and fifty years are passed.

The largeness of the question is only commensurate with its importance. It should be the particular consideration of every parent who has the best welfare of his children in mind; of school boards to whom is entrusted the future citizens of the land; of every man and woman who desires to live long, happily, healthfully and usefully; and of us of the medical profession to whom the public looks for guidance in such matters.

Biological living would bring about a 50 percent reduction in living expenses, for one can easily live on two bits a day in a biological way; in civic expenses for crime, poverty, for mental and physical irregularities are largely due to trouble below the belt. Butchers would be succeeded by nut crackers, confectioners would turn fruit venders, coffee houses would change to dairy kitchens, and tobacco counters would simply go out of business. There would be little need for druggists, for pains and aches would be largely historical; or for dentists, for there would be few teeth to pull or plug; or lawyers, for there would be few criminals; or doctors, if there were no cases of appendicitis and other abdominal disorders; or even for preachers, if a man's liver would permit him to think of heaven instead of wondering what kind of pill he might try. It would practically do away with headaches, toothaches, heartaches, bellyaches, and panics, and tremendously increase happiness, prosperity, healthfulness, race development, human achievement, and length of years.

Is it worth while?

FOCAL INFECTION*

H. A. INGALLS, M. D., F. A. C. S.; Surgeon New Mexico Military Institute; Member Visiting Staff, St. Mary's Hospital, Roswell, New Mexico.

While any portion of the body may serve as a site for focal infection, the tonsils, teeth, accessory sinuses, seminal vesicles, gastro-intestinal tract, and cervix uteri are more commonly the locations of the primary focus.

The train of symptoms in a given case of focal infection vary with the susceptibility of the individual in his reaction to the systemic effect of the toxins absorbed from the focus. Often the site of the infection presents no symptoms per se and our attention is directed only to the manifest involvement of other tissues, so, unless we bear in mind the possibility of a focus, this may escape attention and result in damage to other structures at a later date.

Reed and other investigators have found that in the epileptics and the insane the symptoms frequently disappear when the focus, or foci, of infection are located and removed.

Bacteria free in the stomach have no apparent effect upon the gastric fluids, but when in the walls of this organ cause a lowering of the hydrochloric acid content, giving rise to quite a train of symptoms, and, for this reason, gastric analysis should be routine in physical examinations, especially nervous cases.

The various pathogenic organisms have a selective affinity for certain tissues of the body, and for this reason we find many pathologic expressions as appendicitis, otitis media,

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arthritis, cholecystitis, pyelonephritis, etc.

Research has taught us that pathogenic organisms taken from the tonsils of an individual subject to an acute condition, as appendicitis, when injected into a healthy animal will cause involvement of the appendix in that animal. We find the same results in genito-urinary infections.

The bacillus typhosus is often found in the urine but produces no symptoms, nor does it give rise to pathology in the urinary tract. On the other hand, it is frequently the cause of serious disease in the biliary tissues and has been found in cholangitis and cholecystitis.

The colon bacillus, spread through the lymphatics, is frequently found in diseased conditions of the genito-urinary tract, but may be only a secondary invader.

In addition to specific localization, the toxins produced in foci of infection may cause a wide range of symptoms, such as loss of weight, impaired mentality, insomnia, nervousness, subnormal temperature, prostration, irritability, epilepsy and insanity.

In searching for infection we must bear in mind the fact that the foci of the green producing streptococci, so often found at the roots of teeth, do not give a shadow by x-ray. Our literature contains many reports of relief following extraction in which the x-ray, as well as minute examination of teeth and gums, gave negative results.

Our ancient enemy, the spirochete, in tertiary state, often focalizes and for this reason we have a constant four plus Wassermann despite the most vigorous treatment continued over a period of years. As a negative Wassermann does not exclude syphilis, the possible existence of this disease must be considered in all cases of obscure origin.

Our friends of the dental profession have called our attention to the possibilities of foci in small fragments of alveolar process and under crowns and fixed bridge work.

The marked improvement in certain cases following appendectomy and cholecystectomy indicate that foci were eliminated by removal of these tissues.

In focal infections the tolerance of the individual is an important factor. Some seem able to eliminate large amounts of toxins and continue in apparent perfect health, while others are prostrated by absorption from very small foci. This may, in a measure, be due to the particular strain of the invading organism, as well as the resistance of the individual. From our study of lues we know that the infecting organisms, while having the same morphological characteristics, vary much in their production of systemic effect; one strain giving the typical picture of hard sore, syphilides and gummata, while others give us no symptoms of a primary or secondary stage, and for the third stage produce lesions of skin, bone, cerebro-spinal system, lung, stomach, liver or other tissue or organ; hence we conclude that the same may be considered true for other pathogenic organisms, and that any condition from malaise to insanity may be produced.

As each case is a law unto itself, and no one can know the end result, if neglected, it is necessary that we endeavor to locate the focus and eliminate it. To this end examinations should be conducted by our brethren of the specialties after we have completed our usual routine, and their reports carefully studied.

In surgery and obstetrics serious results often follow, due solely to focal infection by organisms that have affinity for the particular field of our activity. The lowered resistance, due to the anesthetic or shocks, causes our patient to become an easy victim to infection.

The recorded cases of puerperal infection in women passing through delivery without aid, where the vagina was never touched from without, and the pus tubes in virgins, all warn us to be careful and to ascertain beyond doubt as to the physical

condition of our patient before accouchment or operation.

Ulcer of the stomach or duodenum, when due to focal infection, will recur if the primary focus is not removed. Many recurrent cases of ulcer have been completely relieved following appendectomy.

Cases of urethritis with non-specific purulent discharge resistant to local antiseptic, astringent, irrigations, have been relieved by tonsillectomy.

Benjamin Rush, one hundred years ago, noted the relationship between tonsillitis and arthritis. Many contributions have been made since then, yet the field is still open and many problems present from time to time so the present generation has much to do before this subject is on a sound scientific basis.

In August 1900 we operated a case of general splanchnoptosis to relieve the patient from the intraabdominal dragging. The relief obtained was in part mechanical but we are now of the opinion that much of it was due to increased drainage, decreased congestion and lessening of foci of infection.

We recently lost a case of arthritis in which we were unable to locate the focus or foci. Autopsy was denied. As the case was of long standing we conclude there were multiple foci.

Another case first presented a carbuncle. The teeth, accessory sinuses, tonsils, prostate, seminal vesicles and gastro-intestinal tract were negative. The patient continued toxic and began to lose in weight and strength. Various nervous symptoms presented. History of a slight soreness of the left tonsil some six months previously led to further investigation. The tonsil was small and the pillars were firmly bound to the capsule, due probably to caustic applied for relief of a unilateral follicular tonsilitis. Separation of the pillars from the capsule permitted the escape of a small quantity of pus. Removal of the tonsil revealed a deep ulceration. The improvement was rapid, and patient is now to all intents and purposes normal.

That apparently healthy teeth may be the factor is illustrated by another of our series. This case developed a toxic arthritis which was resistant to treatment. Both he and his family were averse to hospital life. The consulting dentist reported teeth and gums in most excellent condition. After several weeks of mistreatment the patient consented to hospitalization. The x-ray showed minute abscesses at the roots of five teeth. The removal of these teeth gave prompt relief.

Unfortunately all cases are not typical. Less than 1% of cases examined, where teeth were found infected, presented symptoms of systemic infection. In less than 15% of those with foci of infection was permanent relief given. This was doubtless due to the fact that multiple secondary foci had become primary.

The excellent work of Henry A. Cotton and his associates among the epileptics and the insane and the investigations of Charles A. L. Reed should stimulate us to renewed effort that we may, by the prompt relief of foci of infection, prevent unnecessary suffering, loss of time, maintenance of hospitals beyond the normal, and add to the wealth of the world by enabling more time for production and less for sickness.

DISCUSSION

DR. M. K. WYLDER, Albuquerque, N. M. (opening discussion): The subject of focal infection is certainly a large one and Dr. Ingalls has given us a great deal to think of. To cover the question of focal infection thoroughly would be impossible in the limit of time we have for this meeting because volumes and volumes have been written upon it and yet the question has not been solved. When we have found the true focus and removed it, we know, if the patient does not suffer from the same effects as before, that we found the true focus. Oftentimes, however, when we think we have found the true focus and have removed it, the patient suffers the same as before, so we know there is a secondary focus.

Last month I was called to see a little boy, six years of age, who had both ankles and one knee severely swollen. He was

running a temperature of 103. I looked him over carefully and found an abscess in one of the teeth. The tooth was removed and he was soon out playing around again. In that type of case, if the focus had not been discovered it might have gone on for weeks.

Dr. Ingalls spoke about the spirochete forming certain focal infections and you can give antisyphilitic treatment for a long period, as you please, and still retain a four plus Wassermann. This may be so, but in cases that have been treated thus until the spirochetes have acquired a tolerance for mercury and become mercury and arsenic fast, by using bismuth preparations you may be able to clear up your Wassermann. The doctor says not to be misled by a negative Wassermann. I have a case in hand at the present time that I was called to see some three or four months ago, suffering with heart symptoms and stomach symptoms, Wassermann negative. I treated her on other lines and she continued to lose ground, so at last I tried the old therapeutic test, put her on antisyphilitic treatment and she began to improve. Four months had been lost by following the negative Wassermann.

The point Dr. Ingalls makes about ulcer of the stomach being relieved by the removal of the appendix is rather a big question. I do not believe the etiology of gastric ulcer has been settled. There have been a great many theories tested and there is a question in my mind if removal of the appendix relieves symptoms of pain in the region of the duodenum or gall-bladder and if it was not perhaps a case in which the pain was reflected from the appendix to that region.

I want to compliment the doctor on the number of things he has given us to think about. This is a very interesting question and I heartily agree with him that it has not been solved and that there is still a great deal of work along this line for us to do.

DR. P. G. CORNISH, JR. (Albuquerque, N. M.): I want to speak of the role focal infection sometimes plays in the etiology of the defects of the thyroid. We have recently had one case who apparently had an abscessed tooth, which turned out to be a very severe affair. We also recently had a case of exophthalmic goitre, in which the man went down from 200 to 140 pounds in three months, which apparently started out by a focal infection of the gall-bladder. In this case treatment of the thyroid has improved his condition after thyroidectomy apparently relieved his symptoms at least temporarily in the gall-bladder region. Focal infection, of course, is very important in this condition.

THE MEDICAL AND SURGICAL ASSOCIATION OF THE SOUTHWEST

Tenth Annual Meeting at Phoenix, Ariz., Nov. 6-8, 1924.

The Annual Meeting of the Medical and Surgical Association of the Southwest, held at Phoenix, Ariz., on November 6th, 7th and 8th was the tenth convention of that organization and the most successful and best attended gathering of the Association.

SCIENTIFIC PROGRAMS

The programs of scientific papers were given in the basement auditorium of the Ellis Building, which was very conveniently arranged for the occasion. The first general assembly was on Thursday morning, November 6th, at 11 o'clock. After an invocation by Rev. B. R. Cocks, of Phoenix, the Association was extended a welcome on behalf of the State of Arizona by Governor G. W. P. Hunt; the governor stated that he felt very kindly disposed toward the medical profession, having recently undergone a successful operation for appendicitis. The welcome on behalf of the Arizona State Medical Association was extended by its president, Dr. C. A. Thomas of Tucson, Ariz. The welcome from the Maricopa County Medical Society, who were to serve as hosts of the Association and visiting guests, was given by its president, Dr. Chas. S. Vivian of Phoenix.

The response on behalf of the Southwest Association was given by Dr. J. R. Van Atta, of Albuquerque, N. M., the president of the organization.

On Thursday afternoon, Nov. 6th, the first feature of the program was the Symposium on Tuberculosis, the first portion consisting of three papers, as follows:

"Mechanical Problems in Advanced Tuberculosis," by Dr. O. Egbert of El Paso, who advocated surgical treatment in suitable cases of advanced tuberculosis, where the problems to be solved were chiefly mechanical.

"Heliotherapy in Tuberculosis," by Dr. Samuel H. Watson, of Tucson,

who reviewed the indications for heliotherapy, and discussed the type of pulmonary involvement in which this treatment is applicable; the importance of proper technic was also covered by the paper.

"Artificial Pneumothorax" was presented by Drs. Flinn, McWhirt and Allen of Prescott and Whipple Barracks. Dr. Flinn presented the written discussion of the subject, Dr. McWhirt following with an exhibition of lantern slides showing the progress of one selected case, while Dr. Allen closed with a discussion of the indications for the use of pneumothorax.

Discussion of this symposium was opened by Dr. Fred Holmes of Phoenix, who complimented Dr. Watson's classification of cases, disagreed with Dr. Egbert's statement that the function of collapsed lung would not return, and mentioned the impossibility of ascertaining by any method except actual trial, whether a lung could be collapsed or not.

Dr. W. W. Watkins, of Phoenix, mentioned some experiences in pneumothorax twelve years ago, claiming to be the first advocate of pneumothorax in Arizona, compressing the first cases at St. Luke's Home, Phoenix, in 1912. He also discussed the necessity of extreme care and exact supervision of patients in using heliotherapy.

Dr. E. W. Phillips, of Phoenix, stated that it was impossible to separate the sun bath from the air bath, since they go together.

Dr. Willard Smith, of Phoenix, stated that he has seen complete alveolar expansion after compression; also spoke of the necessity for extreme care in compression, especially in the presence of adhesions.

Dr. J. I. Butler of Tucson spoke of the work of Lograsso at Buffalo, N. Y., who has 500 cases under heliotherapy all the time and whose sanatorium is well worth visiting.

Dr. J. W. Laws, of El Paso, believes that the sound portions of compressed lungs will return to normal function, and does not quite agree with the idea of indefinite prolongation of the compression.

Dr. Egbert, in closing the discussion, stated that his ideas as to the return of the lung alveoli to function were gathered from literature, and he could not speak from actual observation.

Dr. Watson, in closing, paid his respects to Dr. Flinn, one of the pioneers in advocating rest in the treatment of tuberculosis, and he has been a consistent advocate of this idea and has seen the authorities come to agree with him; so that it is fitting that he should present a paper on pneumothorax which is but another way of securing the necessary rest for one lung.

Dr. Allen, in closing, discussed the partial collapse which can be used to advantage where the facilities for checking by x-ray are available; also that in cases with large cavities, if once collapsed, this will need to be kept up indefinitely, if the results are to be maintained.

Dr. Flinn, in closing, stated that his first case was collapsed by Dr. Watkins in 1912 or 1913.

The studies in tuberculosis were continued by two papers from specialists, as follows:

"Tuberculosis of the Eye in Its Relation to General Medicine," by Dr. H. H. Stark, of El Paso. This paper discussed the different types of tuberculosis which may occur in the eye, what their significance may be in relation to general disease, and what is the proper treatment.

"Nasal Tuberculosis" was discussed by Dr. S. A. Schuster, of El Paso. These rather unusual lesions were described, and the differentiation of true tuberculosis from lupus covered in detail.

The discussion of these two papers was opened by Dr. D. F. Harbridge, of Phoenix, who discussed the advantages which eye tuberculosis offers for direct observation; the necessity for beginning tuberculin treatment with very minute doses and gradually increasing it; also inquired whether it was always wise to shut off the

light, when heliotherapy is good for the disease elsewhere.

Dr. H. T. Bailey, of Phoenix, reported a case of eye tuberculosis which presented many of the symptoms mentioned in Dr. Stark's paper; also stated that nasal tuberculosis is more frequent than is usually thought, and the reason we do not have more is because of the antiseptic nature of the nasal secretion.

Dr. J. W. Laws, of El Paso, mentioned the possibility of exactly gauging the dosage of tuberculin by the eye reaction, when an eye lesion is present.

Dr. G. Werley, of El Paso, stated that tuberculosis becomes latent and becomes active intermittently, just as syphilis does.

Dr. Stark, in closing the discussion, stated that the principle of shutting off the light is the principle of rest which is more important than heliotherapy. Tuberculin is not used in active cases; the initial dose is always the dangerous one.

Dr. Schuster, in closing, stated that nasal tuberculosis is almost always secondary, and that nasal examination should be done on all suspected tuberculosis cases.

The final papers in the group of studies in tuberculosis were surigcal, as follows:

"Further Studies in Surgery Among Sanatorium Tuberculosis Patients, With Special Reference to Abdominal Tuberculosis," by Drs. W. R. Abbott and F. J. Nordby, of Fort Bayard, N. M., read by Dr. Nordby. The paper reports 151 cases of surgical procedure in patients with tuberculosis, with a detailed analysis of final results, complications and effects of the surgery upon the tuberculosis.

"Tuberculosis of the Kidney," by Dr. K. D .Lynch, of El Paso, was a very complete presentation of the subject from the diagnostic and treatment standpoint, giving the indications for surgical and medical management, and discussing the importance and difficulties of investigation of the kidneys, suspected of being tuberculous.

The discussion of this group of surgical papers was opened by Dr. Willard Smith, of Phoenix, who emphasized the point that tuberculous patients should not be deprived of surgical aid, when surgery is indicated, also that ether has dangers which cannot be ignored. He also noted, with approval, Dr. Lynch's growing tendency to conservative management of kidney tuberculosis.

Dr. P. C. Christian, of Whipple Barracks, Ariz., stated that their experience in surgery on tuberculous patients had been very satisfactory; also that as diagnosis is made earlier in urinary tract tuberculosis, surgery would give better results.

Dr. M. G. Carhart, of Fort Bayard, N. M., emphasized the large percentage of abdominal lesions in tuberculous patients, and that these required careful study in order to arrive at the proper conclusions regarding the surgery indicated, if any.

Dr. J. I. Butler, of Tucson, does not think the impression should get out that the tuberculous patient can be operated as favorably as the non-tuberculous; he thinks the tuberculous kidney should be removed early.

Dr. Chas. S. Vivian, of Phoenix, discussed the advisability of conservative local treatment of the tuberculous kidney, by washing the kidney pelvis and applying local medication.

Dr. Lynch, in closing, stated that the preparation of the kidney, by local applications, even when operation is to be done, is important, and frequently this obviates the necessity for operation.

On Thursday evening, following the smoker at the Country Club, the subject of "Traumatic Hernia" was discussed.

This discussion was introduced by a paper by Dr. F. T. Hogeland, of Cananea, Sonora, Mex., under the title "What Shall the Industrial Surgeon of the Southwest Regard as Traumatic Hernia?" Dr. Hogeland was unavoidably absent from the meeting, on account of the recent death of his associate; the paper was read by the secretary, Dr. Watkins.

Following this, the report of the special committee appointed by President Van Atta, on Traumatic and Industrial Hernia was read by Dr. C. R. Swackhamer of Superior, Arizona. This special committee consisted of Drs. C. R. Swackhamer, Superior, Ariz.; F. C. Diver, Dawson, N. M.; Geo. A. Bridge, Bisbee, Ariz.; R. L. Ramey, El Paso, Tex.; F. T. Hogeland, Cananea, Sonora, Mexico.

This report and Dr. Hogeland's paper are printed elsewhere in this issue of Southwestern Medicine. Following the presentation of the report, motion was made by Dr. R. D. Kennedy of Globe, and seconded by Dr. W. O. Sweek of Phoenix, that the report of the special committee be adopted by the Medical and Surgical Association of the Southwest as the expression of that organization regarding what should be considered traumatic and industrial hernia.

In discussion, Dr. Sweek recalled, several years ago, when five suits were brought against the same corporation at one term of the United States District Court in Phoenix, the total damages sought being more than sixty thousand dollars. Every case was a clear-cut case of rupture occurring while the man was at work, yet the cases were all decided in favor of defendant, it being proven to the satisfaction of the jury that hernia is not caused by trauma.

Dr. F. C. Jordan of Chandler, Ariz., reported a case of true traumatic hernia from a blow over the abdominal wall.

Dr. Kimball Bannister of Phoenix, stated that while some cases may not be traumatic hernias, they could properly be called "occupational hernias," since the immediate cause is an occupational strain; recalls a case caused by heavy lifting, where the man is now drawing compensation.

Dr. W. A. Holt of Globe, Ariz., stated that the question of hernia has been threshed over by the industrial surgeons as much as the sacro-iliac strain. Has been engaged in industrial work for many years, and only within the last few days saw his first case of real traumatic hernia.

The report of the committee was adopted without dissenting vote.

One of the features of the scientific program was the presentation by Dr. W. D. Sansum, Director of the Department of Metabolism, Santa Barbara Cottage Hospital, of "The Causes and Treatment of the Various Known Forms of Acidosis." This was given on Thursday evening, at the Country Club, at the close of the evening program.

The address was illustrated by diagrams and tables drawn on the black-board. The research work on the effects of feeding acid ash and alkali ash residues to rabbits was discussed; also the clinical value of foods which leave acid residues to be eliminated as compared with those which leave alkali residues. Tables of foods, with the percentage of acid or alkali in the ash in their residues were given. A series of menus built around the soy bean were given and their value discussed. Methods for testing the urine for acidity were discussed.

The subjects presented by Dr. Sansum were discussed by Dr. Nelson W. Janney of Los Angeles, who dwelt particularly on diabetes, and the value of detailed metabolism studies.

Dr. Roy Thomas of Los Angeles, formerly president of the Arizona State Medical Association, spoke briefly of his observations on blood pressure in diabetes.

The scientific program for Friday afternoon, at the Ellis building, began with a paper by Dr. M. K. Wylder, of Albuquerque, N. M., on "A Discussion of Enuresis," the burden of the paper being that enuresis is not a physical entity but a symptom which may result from many causes.

Discussion of this paper was opened by Dr. C. S. Vivian, of Phoenix, who thinks that the training of the patients is as important as that of the children; also mentioned a case cured by removing the tonsils.

Dr. P. C. Christian of Whipple Barracks, Ariz., thinks that the explanation of the relation between tonsillitis and enuresis is simple; they have frequently found infected tonsils and infected prostate glands associated.

Dr. Chas. S. Vivian of Phoenix, suggested the training of the children to stop and start urination at will, with ergot to tone up the muscle.

Dr. E. R. Charvoz, of Phoenix, thinks that when the cases due to organic disease of the urinary and nervous systems and the feeble-minded are eliminated, the remainder can be handled by careful training, including due attention to the important factor of suggestion.

Dr. Wylder, in closing, recalled that the influence of the general health was demonstrated by the return of the symptom when the general health becomes impaired, after a period of good health.

A Symposium on Urology, consisting of two papers, was next presented, as follows:

"Urologic Problems of the General Practitioner," by Dr. Robert V. Day of Los Angeles, who brought out the various conditions which the general practitioner is likely to meet up with, with particular reference to the organic conditions which are definite and well established.

"Stricture of the Ureter," was presented by Dr. W. R. Jamieson of El Paso, who discussed the causes of ureteral stricture, the symptoms which they produce, the effects of this lesion, the methods of diagnosis and the treatment of them by dilatation through the cystoscope.

The discussion of these papers was opened by Dr. Chas. S. Vivian of Phoenix, who illustrated his points by lantern slides of some of his recent cases of ureteral stricture, and gave the technic of examination. He confirmed Dr. Day's opinion of the value of acriflavine, and his statement that you run little or no danger of infecting a healthy bladder by catheterization.

Dr. S. H. Watson, of Tucson, emphasized Dr. Day's point that tuberculosis of the urinary tract is always a part of the general disease and the surgery of the local manifestation will not cure the patient.

Dr. C. A. Thomas of Tucson, emphasized the importance of differentiating urinary tract lesions in studying abdominal symptoms, as one of the most frequent causes of error is to diagnose as something else what is later discovered to be ureteral stone or stricture.

Dr. Day, in closing, again showed a number of slides and answered points brought up in discussion by reference to the slides.

Dr. Jamieson, in closing, mentioned a case of acute unilateral kidney infection, which was described by Dr. W. W. Waite of El Paso, as acute nephritis with hemorrhage from the diseased areas.

The next paper on the program was on "Cardiac Infarcts," by Dr. Guy Werley of El Paso. This interesting subject was very ably presented, the paper being illustrated with lantern slide reproductions of photographs of pathological specimens, and by the presentation of necropsy specimens brought by Dr. Werley.

The discussion was opened by Dr. Orville H. Brown of Phoenix, who stated that he believed Dr. Werley had written a new chapter in clinical medicine; that in all works in his library on medicine, only one mentions the condition and that one only from the pathological standpoint. As a clinical condition to be diagnosed and treated, Dr. Werley has presented something very valuable.

Dr. Willis W. Waite of El Paso, stated that this is an important subject which has been too long neglected by the clinicians; only lately has the pathological material collected begun to point the way to recognition of the symptoms during life.

Dr. F. D. Garrett of El Paso, inquired as to the differential diagnosis between cardiac infarct and angina pectoris.

Dr. Werley, in closing, disclaimed originality, stating that while the literature is scanty, several excellent investigations have been reported; he discussed the differentiation between cardiac infarct and angina.

The next paper was on "Some Obstinate Cases of Chronic Diarrhoea due to Infection of the Duodenum by Giardia Intestinalis," by Dr. F. D. Garrett of El Paso, Texas. This condition is too frequently overlooked, and it is necessary first to have its possibility in mind and then to make the necessary careful investigations for the organisms.

Discussion of the paper was opened by Dr. H. B. Gudgel of Phoenix, who stated that he has not yet seen a case which was recognized, and quoted the investigations of Mathews and Smith. Carriers are probably the mode of dissemination of the disease.

Dr. S. H. Watson of Tucson, inquired regarding the effects of salvarsan, which he has used on two or three cases.

Dr. F. D. Garrett, in closing, stated that the organisms do not seem to migrate upward; and that salvarsan has seemed to him a rather powerful remedy for a comparatively harmless condition.

The next paper was on "Diagnostic Difficulties in the Right Abdomen," by Dr. A. L. Blesh of Oklahoma City, Okla. The proper study of obscure lesions, especially in the right abdomen, requires co-operation between several highly trained specialists; operations for chronic appendicitis are not justifiable until the right urinary tract has been proven normal; adhesions are very rarely productive of symptoms requiring treatment; the operation should be reasonably certain of relieving the symptoms before being performed.

The discussion of this paper was opened by Dr. P. G. Cornish, Jr., of Albuquerque, N. M., who emphasized the importance of the x-ray examinations in differentiation of abdominal lesion, and recalled some unexpected errors in diagnosis of appendix conditions.

Dr. M. K. Wylder of Albuquerque, emphasized the importance of detailed and thorough study of all chronic cases, before any kind of operation is done.

Dr. F. D. Garrett of El Paso, mentioned the importance of colitis in studying symptoms which suggest appendicitis.

Dr. G. Werley of El Paso, stated that the insistence of hospitals on careful examinations and review of the clinical records by a committee is inclined to curtail over-enthusiastic surgery.

Dr. C. A. Thomas of Tucson, recalls the statistics that 40 per cent of operations later prove to have been performed for the wrong thing, and patients should be carefully studied by every available method.

Dr. Blesh, in closing, re-emphasized the fact that diagnosis of chronic appendicitis on insufficient data is bringing the profession into disrepute.

On Saturday afternoon, November 8th, a group of four papers bearing on industrial surgery was presented as follows:

"The Industrial Surgeon," by Dr. John E. Bacon of Miami, Ariz., who discussed the differences between the industrial surgeon and the general surgeon in civil practice, the necessity for highly trained surgeons in the handling of industrial injuries, and the added responsibilities which industry lays on the surgical skill.

"The Operative Treatment of Fractures," by Drs. W. L. and C. P. Brown of El Paso, was read by Dr. W. L. Brown, who illustrated his subject by numerous lantern slides of fractures, discussing the mechanical principles involved in the management of fractures in the several locations.

"Fractures of the Long Bones," by Drs. A. C. Carlson and C. C. Hedberg of Jerome, Ariz., was read by Dr. Hedberg, the paper being illustrated by lantern slides of a number of fractures. These authors advocate the immediate open treatment of fractures of the long bones, if man-

ipulation fails to reduce them to satisfactory position.

"Injuries to the Head," was presented by Dr. W. A. Holt of Globe, Ariz., who covered the subjects of concussion, fractures of vault and base, laceration of the brain tissue and membranes and intracranial hemorrhage, each of the conditions being illustrated by a typical case.

The discussion of this group of papers was opened by Dr. C. A. Thomas of Tucson, who confined his remarks chiefly to Dr. Holt's paper, and thinks that no head injury should be considered trivial. He has been disappointed in the results of decompression operations.

Discussion was continued by Dr. R. D. Kennedy of Globe, Ariz., who believes that the better mechanic a doctor is the fewer open operations he will have; also that a thorough understanding of the Thomas splint will lessen the open operations.

Discussion continued by Dr. E. Payne Palmer of Phoenix, who thinks the industrial surgeon has made more progress in the last 25 years than any other branch of surgery; he also emphasized the importance of rest in head injuries, which should be several weeks in concussion cases. Also that too few head injuries have exploratory operation; the policy of waiting to see what will happen usually means that operation is done too late.

Dr. W. O. Sweek of Phoenix, recalled that 80 per cent of injuries are seen first by the family doctor; therefore, we need more widely disseminated knowledge from the centers where the bulk of the first-class work on injuries is being done, that is, from the industrial surgeons.

Dr. S. A. Schuster of El Paso, mentions the importance of the eye-ground examinations in head injuries, because the optic nerve is the one visible part of the brain which presents into sight.

Dr. Chas. S. Vivian of Phoenix, mentions the importance of removing plates in industrial fractures, before the case gets into court.

Dr. H. T. Bailey of Phoenix, mentioned the fact that paralysis of the external rectus muscle after head injury usually means fracture of the petrous portion of the temporal bone.

Dr. H. H. Stark of El Paso, expressed surprise at the high percentage of head injuries in industrial practice, and also confirmed the value of ophthalmoscopic examination.

Dr. Bacon, in closing, took issue with Drs. Carlson and Hedberg, with reference to the advisability of open operation on industrial fractures; he supported Dr. Kennedy in the belief that a detailed study of mechanics and thorough familiarity with the Thomas splint will usually obviate the necessity for open operation.

Dr. W. L. Brown, in closing, commented on Dr. Holt's idea of checking the intracranial pressure by spinal puncture. He has not used drainage in any of the operations on fractures. Does not remove plates in the fore-arm, but does in the weight bearing bones.

Dr. Hedberg, in closing, stated that they have had more court difficulty in cases showing anatomical deviation after fracture than they have in cases who have had operations.

Dr. Holt, in closing, did not think that the industrial surgeon, at least, would feel inclined to explore the head without very positive indications; the limitations placed on industrial surgeons in this field might not apply to surgeons in civil practice. All traumatic industrial cases have Wassermann tests.

CLINICAL DEMONSTRATIONS

The clinical demonstrations by the Maricopa County physicians and surgeons were held at the two general hospitals, (St. Joseph's and the Deaconess), during the forenoons of November 7th and 8th.

At St. Joseph's Hospital, on Friday, November 7th, the following clinics were held:

Drs. E. Payne Palmer, Chas. S. Vivian and F. J. Milloy of the Southwest Clinic, gave a general surgical

clinic and demonstration from 8 o'clock to noon, as follows:

Case of chronic cholecystitis under ether anesthesia, followed by a discussion of the diagnosis of acute, subacute and chronic gall-bladder disease, in its differentiation from stomach lesions, by Dr. Milloy.

Case of toxic goitre, under nitrous-oxide-oxygen-novocaine. Presentation of postoperative case of toxic goitre.

Laparotomy for tubo-ovarian pathology under ether anesthesia.

Laparotomy for chronic pelvic inflammation, with hysterectomy, under ether anesthesia.

Caesarean section under nitrous-oxide-oxygen-novocaine anesthesia; with presentation of mother and baby of a previously operated Caesarean case.

Details of all these cases are presented in this issue of Southwestern Medicine.

Dr. W. O. Sweek operated under local and psycho-anesthesia on three cases, as follows:

Exploratory of left lung for suspected interlobar empyema. Thyroidectomy upon a very large and adherent adenomatous thyroid which was producing obstruction. Laparotomy for pelvic pathology.

Drs. J. J. McLoone and Harley Yandell operated upon the following cases: (1) Yankauer operation for closure of the Eustachian tube; (2) submucous resection; (3) tonsillectomies; (4) demonstration of Neumann anesthesia method and sinus cases.

Dr. Harry B. Gudgel presented medical cases, including one of malta fever.

Dr. Fred G. Holmes gave a clinic on artificial pneumothorax and chest pathology, using the fluoroscope to demonstrate the pneumothorax difficulties and results attained in a number of patients. One case of lung abscess and one patient with actinomycosis of the lungs of more than twenty years standing were shown.

At the Arizona Deaconness Hospital, on Friday forenoon, November 7th, the following clinics were held.

Drs. Louis Dysart, Kimball Bannister and R. W. Eaton presented the following medical and surgical cases, which will be described in more detail in an early issue of Southwestern Medicine:

(1) Severe Secondary Anemia with blood transfusion.

(2) Severe hemorrhage from fibroid of uterus; result of operation.

(3) Old healed tuberculosis of cervical vertebrae with Albee operation.

(4) Perinephritic Abscess, secondary to palmer infection.

(5) Results of operation for strangulated femoral hernia with gangrene of bowel.

(6) Fracture of femur with delayed union; callus stimulated by high voltage x-radiation.

(7) Diabetes, (a) juvenile with coma; (b) ambulatory case treated with insulin.

(8) Diabetes with furunculosis.

(9) Chronic mon-articular arthritis (knee).

(10) Acute hemorrhagic nephritis, specific type of infection.

(11) Tuberculosis of foot.

(12) Fracture of patella; infected knee joint; sepsis.

(13) B. B. Fracture of fore-arm; delayed union.

(14) Traumatic hernia.

(15) Resection of pylorus with gastro-enterostomy for perforated gastric ulcer.

(16) Nephrectomy for multiple renal calculi.

(17) Lung Abscess.

Dr. Nelson W. Janney of Los Angeles, held a clinic on endocrine conditions, utilizing cases brought by the doctors of Maricopa county.

Dr. R. J. Stroud gave a demonstration of the Schick tests and Dick tests in all stages of reaction, using Indian children, in order to demonstrate the peculiarities and difficulties of interpretation in the dark-skinned individuals.

Dr. I. L. Garrison gave a demonstration on syphilis, showing the results of treatment in the Social Service Clinic in Phoenix, together with

the method of salvarsan administration.

Drs. W. C. Ellis and C. B. Palmer gave a surgical clinic on a case of suprapubic prostatectomy.

Dr. H. T. Bailey, demonstrated the McReynold's operation for pterygium and the method of excision of the lachrymal sac.

Dr. F. L. Reese gave a demonstration of the use of the Beck instrument in bloodless tonsillectomy.

On Saturday forenoon, November 8th, the following clinics were held at the St. Joseph's Hospital:

Dr. Willard Smith gave a demonstration of surgery in the tuberculous patient, all of his operations being on tuberculous individuals, as follows: (See p. 612 for details.)

(1) Laparotomy for tuberculosis in the pelvis, under local and block anesthesia. (2) Thyroidectomy for adenomatous thyroid with hyperthyroidism, under gas-oxygen anesthesia. (3) Thoracoplasty for advanced pulmonary tuberculosis and mixed infection, under gas-oxygen and nerve block anesthesia.

Dr. Chas. S. Vivian, with Dr. H. P. Mills, gave a demonstration of cystoscopic and pyelographic technic, using the fluoroscope for demonstration of the filling of the kidney pelvis. Large light boxes in the corridor were used to demonstrate various types of kidney pathology as shown by pyelograms.

Dr. F. J. Milloy gave a clinic on stomach ulcer, with demonstration of patients, outline of treatment and discussion of results of medical treatment. (See p. 631 for details.)

Drs. Ancil Martin, W. A. Schwartz and W. W. Watkins demonstrated the method of localization of foreign bodies in the eye with the improved Sweet localizer. Dr. Martin presented cases as follows: (1) Case of foreign body lying posterior to the globe, with x-ray films and localization charts. (2) Three cases from whom foreign bodies had been removed with giant magnet, showing present condition of the eyes. (3) One case with foreign body lying at the sclero-corneal junction just anterior to the lens. This was extracted with the giant magnet through a corneal puncture.

At the Arizona Deaconess Hospital, on Saturday, November 8th, the following clinical demonstrations were held:

Dr. George Goodrich operated upon an adenoma of the thyroid, and gave demonstration of tumor cases which were inoperable, as follows: (1) Pelvic tumor, diagnosed as metastasis from sarcoma of the back, treated by radium and x-ray until it has almost disappeared. (2) Inoperable pelvic carcinoma now under radiation treatment, with patient at work as stenographer.

Dr. Chas. S. Vivian gave demonstration and discussion of (1) epididymitis, (2) bloodless spinal drainage and treatment of cerebro-spinal syphilis, (3) technic of orchidectomy in early tuberculosis; (4) bloodless removal of stones from ureter; (5) gentian violet in gonorrheal complications.

Dr. Orville H. Brown gave a discussion and demonstration on the subject of bronchial asthma.

ENTERTAINMENT

The entertainment of the members and guests was entered into enthusiastically by the Maricopa County Medical Society and the Ladies' Auxiliary of that society. The chairman of the entertainment committee was Dr. Geo. Goodrich and of the Ladies' Auxiliary Committee was Mrs. Fred Holmes.

On Thursday evening the visiting ladies were taken charge of by Mrs. Holmes and her committee for a dinner at the Grand Cafe, followed by a theater party at the Rialto, where Harold Lloyd was being exhibited in "Hot Water." There were more than thirty visiting ladies at the meeting, which, together with the forty or more members of the local Ladies' Auxiliary, made up a very enjoyable party.

On the same evening, the members and visiting guests gathered at the

Country Club for a stag dinner, buffet style. About one hundred were present at this function. Following the dinner, thirty minutes were given up to stories and jollification. After the presentation of a part of the scientific program, an intermission was given up to entertainment by a party of singers and dancers from one of the local theaters. The scientific program of this evening is elsewhere mentioned.

On Friday evening, November 7th, occurred the annual banquet and dance of the Association. This was served at the Country Club and was attended by more than one hundred and fifty of the members, visiting doctors and guests. An especially pleasing feature of this occasion were the songs by Mr. Viagranda of the Arizona School of Music. After the dinner, the floor was cleared and the remainder of the evening given up to dancing.

On Saturday, the Ladies' Auxiliary gave a "Progressive Luncheon," in which each course of the lunch was served at a different residence, the party being transported in automobiles from one to the other. Courses were served at the residences of Mrs. Chas. S. Vivian, Mrs. Orville H. Brown, Mrs. W. C. Ellis and Mrs. L. D. Dameron, in the order named.

BUSINESS MEETING

The business session of the Association was held on Saturday afternoon, November 8th.

The secretary gave a verbal report, and presented the following names of applicants for membership, who had been approved by the board of trustees—these were all accepted for active membership, by vote of the Association:

Bakes, Edwin, C., Phoenix, Ariz.
Brockway, Geo. M., Phoenix, Ariz.
Carhart, W. G., Fort Bayard, N. M.
Clohessy, T. T., Buckeye, Ariz.
Copeland, James A., Wickenburg, Ariz.
Couch, Garland B., Phoenix, Ariz.
Goss, H. L., Phoenix, Ariz.
Hicks, E. L., Phoenix, Ariz.
Holmes, Fred G., Phoenix, Ariz.
Jordan, F. C., Chandler, Ariz.
Meason, James M., Chandler, Ariz.
Garrison, I. L., Phoenix, Ariz.
Norby, F. J., Fort Bayard, N. M.
Shelley, A. A., Phoenix, Ariz.
Adams, C. W., Globe, Ariz.
Briley, James H., Duncan, Ariz.
Brown, Oscar S., Winslow, Ariz.
Comer, M. C., Tucson, Ariz.
Cruthirds, A. E., Bisbee, Ariz.
Culpepper, M. B., Carlsbad, N. M.
Davis, Augustus, Jr., La Madera, N. M.
Dodds, David C., Albuquerque, N. M.
Harper, T. C., Globe, Ariz.
Hawkins, Eugene W. Sacaton, Ariz.
Hernandez, Rafael A., Tucson, Ariz.
Hill, J. B., Glendale, Ariz.
Horst, W. W., Globe, Ariz.
Irvin, C. E., Miami, Ariz.
Matthews, E. C., Albuquerque, N. M.
Lapsley, John Y., Cananea, Sonora, Mex.
McIntyre, A. J., Phoenix, Ariz.
Milloy, Frank J., Phoenix, Ariz.
Morris, Jas. W., Pima, Ariz.
Pate, L. H., Carlsbad, N. M.
Richards, L. H., Gila Bend, Ariz.
Schenck, D. Scott, Safford, Ariz.
Schuster, S. A., El Paso, Texas.
Scott, Jas. R., Albuquerque, N. M.
Self, T. F., Roy, N. M.
Shaver, P. M., Carrizozo, N. M.
Slaughter, T. H., Miami, Ariz.
Southworth, H. T., Prescott, Ariz.
Stratton, J. N., Safford, Ariz.
Stroud, R. J., Tempe, Ariz.
Sult, C. W., Phoenix, Ariz.
Swackhamer, C. R. Superior, Ariz.
Thayer, L. H., Phoenix, Ariz.
Triolo, J. M., McNary, Ariz.
Tucker, G. E., Madera, Chih., Mexico.
Walsh, Jas. M., Jerome, Ariz.
Watts, W. B., Jr., Miami, Ariz.
Weigel, B. J., Albuquerque, N. M
Wightman, L. E., Globe, Ariz.
Woodall, G. H., Phoenix, Ariz.
Wright, F. T., Douglas, Ariz.
Yater, C. M., Roswell, N. M.

With these applicants, the total membership of the Association at present is 218.

A number of communications from members who had expected to attend the meeting, but were prevented from doing so, were presented.

The arrangements for the publication of Southwestern Medicine during 1925 were discussed. It was reported that the board of managers still had the matter under advisement, with one proposal which probably would be accepted. This proposal contemplates dividing the present one-man management of the journal, so that the publisher would take over the advertising department and business management of the

journal, leaving only the actual editorship of the reading section for the editorial staff. If this arrangement is perfected, the present editorial staff will be continued, with Dr. W. W. Watkins as chief editor.

The election of officers being declared in order, the following were nominated and duly elected for the ensuing year:

Dr. H. H. Stark of El Paso, President.

Dr. Willard Smith of Phoenix, First Vice-President.

Dr. P. G. Cornish, Jr., of Albuquerque, N. M., Second Vice-President.

Dr. W. W. Watkins, of Phoenix, Arizona, Secretary-Treasurer.

With regard to the meeting place for 1925, information was elicited that the "Medical Association of the Southwest," an organization which includes several of the Mississippi Valley states, has decided to meet in El Paso in November, 1925, and the El Paso delegates inquired regarding the pleasure of this Association with reference to a joint meeting.

Motion finally was made and prevailed that the Medical & Surgical Association of the Southwest meet in El Paso next year, and that we favor a joint meeting with the other organization mentioned, provided suitable and satisfactory arrangements can be made for the joint program.

After the usual resolutions of thanks and appreciation for the hospitality of the entertaining society, the Association adjourned sine die.

PROMINENT VISITORS

Among the visitors from neighboring states were the following: Dr. W. D. Sansum of the Metabolic Clinic, Santa Barbara, Calif; Dr. Nelson W. Janney of Los Angeles; Dr. Roy E. Thomas of Los Angeles; Dr. Robt. V. Day of Los Angeles; Dr. A. L. Blesh of Oklahoma City, Okla.

Several of our members from old Mexico were in attendance, which was a very gratifying feature of this meeting.

SURGERY IN THE TUBERCULOUS

WILLARD SMITH, M. D., F.A.C.S., PHOENIX, ARIZ.

....(Clinic held at the Meeting of the Medical & Surgical Association of the Southwest, Phoenix Ariz., Nov. 8th, 1924, at St. Joseph's Hospital).

This clinic consisted of three cases, as follows:

(1) Salpingo - oophorectomy and freeing of adhesions, in patient with artificial pneumothorax of left lung.

(2) Thyrodectomy for adenomatous goiter, in ambulant patient with moderate degree tuberculosis.

(3) Thoracoplasty for collapse of cavity in patient where pneumothorax is not possible.

CASE 1

Single woman, age 33. First came under my observation March 21, 1917, with rales and dulness in upper left lobe. In February, 1920, lung signs had cleared up considerably but not entirely. In 1917, when first seen by me, her menstruations were irregular and somewhat painful; in February, 1920, physical examination seemed to reveal an adherent and cystic right ovary, with uterus in dextroversion, which combination I thought was producing both ovarian and obstructive dysmenorrhea. Removal of right ovary was advised. Not seen again until April, 1923, at which time examination showed right ovary large, hard and displaced downward, with considerable pain in right lower abdomen and pelvis. Her appendix had been removed 12 years before, so that adhesions might have something to do with present conditions. In April, 1923, there was distinct reactivity of her tuberculosis, with history of temperature up to and above 100 for some time. Also there was a chronic tonsilitis, and considerable disability apparently associated with right ovary. Advised bed rest, removal of right ovary and removal of tonsils. Advice not taken, except that she was in bed six weeks in Mercy Hospital in Prescott, during which time she gained ten pounds. In fall of 1923, she had been working a little and was running daily temperature to 99.6. Right lung was negative, as it always had been, but left lung was still active, and artificial pneumothorax was begun in September 1923, which has been continued up to present time (November 6th) with apparent benefit. She has continued to have menstrual trouble,

with tumor mass apparently involving right tube and ovary and which I believe is probably a tuberculosis with adhesions involving these structures. She still has temperature though not faithful in taking rest, has failed to gain in weight, suffers a great deal with the pelvic condition, has some dysuria and urinary frequency. Careful genito-urinary examination has failed to prove any kidney or bladder lesion. Lung signs have apparently improved, but the daily temperature of tuberculosis type continues. At times there has been some green diarrhea, usually accompanied with a suggestion of doughy feel over the ascending colon. Many examinations of feces have failed to demonstrate tubercle bacilli, parasites or ova, though there has occasionally been a positive blood test; this latter may not be significant as she has always had red meats in her diet.

On account of the above facts and because of the continuation of her pelvic symptoms, in the face of the apparent improvement since she has had complete rest of her left lung by artificial pneumothorax, I have at last decided that it is necessary to open her abdomen and do such surgery as may seem necessary from my findings after it is opened. She has had ureteral catheterization and examination of catheterized urine, with guineapig inoculation, the result of which was negative for tuberculosis.

The contemplated operation is undertaken under local anesthesia, so as to avoid any possibility of injuring her lungs, and the exact nature of the operation will depend on what is found.

Preoperative diagnosis is tuberculosis of pelvic structures.

At operation a large mass of parietal adhesion under an old appendectomy scar was found, which was freed. A cystic right ovary with thickened right tube, not resembling tuberculosis. These were removed.

Pathological examination showed multiple cysts of ovary and chronic salpingitis,—non-tuberculous.

Recovery was uneventful and on December 1st had entirely recovered from the operation. Was still bed case on account of tuberculosis, though allowed to go to meals and to toilet. There seems to be some general improvement as a result of the operation and more marked improvement is expected.

CASE 2

Female, unmarried, age 20. Student nurse, consulted me March 11, 1924, saying she had felt tired and worn out for a long time and had increasing cough which produced yellow sputum. Examination showed distinct rales and dulness in left apex. Complement fixation and von Pirquet were positime and x-ray report by Dr. Watkins was as follows:

"Radiograph of this chest shows fairly extensive infiltration densities, those on the left involving in the apex and upper lobe as low as the third interspace, with basal densities and adhesions to the diaphragm. On the right, the infiltration is not quite so extensive and involves the upper lobe as low as the third rib."

She was running a temperature of 99.6 daily, and there was an apparent increase in size of thyroid gland.

Under diagnosis of tuberculosis, bed rest was ordered; this she at once took up and in one week her fever had disappeared; she has adhered faithfully to the rest treatment and her lung signs have materially improved. She has been having Spengler's "I.K." up to July 26th, 1924, since which time she has had tuberculin and her lung signs have steadily improved. On September 11th there were still some rales in her left apex, and on October 31st, these rales had increased, though she was not running fever.

On April 26th, I noticed that the goiter had increased in size. On May 8th basal metabolism showed plus ten percent variation from normal. By the latter part of May we were convinced that pressure from the thyroid caused her to cough. In July, 1924, I had Dr. Watkins in consultation as to the advisability of x-ray treatment for the goiter. He said that x-ray was not advisable in an adenomatous goiter with a metabolism rate no higher then plus ten percent, so it was decided to remove the goiter when I return in the Fall. On September 20, she had a small hemorrhage, which caused a temporary cessation of the O. T., and lesser amounts on its resumption.

It is our belief that her recovery from tuberculosis is handicapped by tracheal pressure which interferes with lung rest. The present operation is undertaken for the purpose of relieving that pressure by excision of a portion of the thyroid tumor. She is not a toxic goiter case, the apparent exophthalmos being a family characteristic and not pathologic.

Under gas-oxygen and novocaine anesthesia (Dr. Carson anesthetist), a bilateral partial thyroidectomy was performed.

Pathologist's report would indicate a hyperplasia of the epithelium and

colloid collection,—a colloid goiter rather than an adenoma.

Recovery from the operation was uneventful. On December 1st, her breathing was without effort which will contribute to lung rest. She is an ambulant case and progressing nicely.

CASE 3

Single man, age 30, laborer. Has been a patient at St. Luke's Home for two years and four months. In February, 1924, saw him in consultation with Dr. Phillips, with regard to a possible thoracoplasty to compress the middle portion of right lung. At that time he had just had a severe hemorrhage and his coagulation time was more than 13 minutes, and it was not deemed advisable to attempt surgical measures, though he seemed a favorable case when blood conditions were favorable.

He is a young Italian man, with evidence of fairly universal tuberculosis. His left lung has not shown any sign of activity since he has been at St. Luke's Home, and seems to be in condition of dependable arrest. He has signs of low-grade activity pretty well throughout the right lung. Both physical examination and x-ray show an irregular cavity situated just below the root of the right lung close to the hilus and seemingly in the middle lobe. Dr. Watkins does not agree that the x-ray shows a cavity; Dr. Phillips and I think we see one. As the upper and lower lobes of the right side are in fairly good condition, and as he has been the subject of repeated hemorrhages which prevent his recovery, and since he has had his coagulation time shortened by administration of calcium, and since repeated attempts to produce artificial pneumothorax have been failures because of a practically universally adherent right pleura, it has been decided to attempt surgical collapse of the middle portion of the right lung by the removal of the third and seventh ribs inclusively, sufficiently to permit this collapse. The following record from the files of St. Luke's Home, by Dr. Phillips, will give the history in more detail:

Patient enjoyed god health all his life until an attack of appendicitis in 1920. After an operation, said to have been long and difficult, he did not recover his usual strength, and gradually a chronic cough appeared. He paid no attention to this until he had a severe pulmonary hemorrhage. Then he went to California, lost most of his symptoms, tried to work, and tried living on the desert. He entered St. Luke's Home April 24, 1922. At this time he was in good general condition. His chest showed the usual signs of an active tuberculous infiltration of the upper and middle lobes of the right lung, with evidence of some deep involvement about the root on the other side. The x-ray corresponded, but showed more extensive involvement than was indicated by the physical findings; also showed an enlarged and pulsating aorta with mediastinum displaced to the right. The Wassermann reaction was negative; the sputum showed tubercle bacilli. He was on right postural rest and improved rapidly so far as his symptoms were concerned; he gained weight, lost his fever; sputum decreased from two ounces to one drachm and no bacilli could be found in it. In August, 1922, following a cold, he had repeated and severe hemorrhages from the right lung. Pneumothorax was attempted but no free pleural space could be found. Signs and simptoms were worse after this bleeding and many tubercle bacilli showed in the sputum. After a few months of rest and a course of autogenous vaccine, he again improved and tolerated considerable exercise. He was discharged in May, 1923 and worked and felt very well until October of that year, when he had another series of hemorrhages. He was readmitted to St. Luke's in much the same condition as when he was first seen. With rest, he made his usual improvement up to a certain point. Since it seemed impossible to pass this point, another and very persistent attempt was made to collapse the right lung. The fluoroscope was used to direct the needle and by this means a few small pockets of air were placed here and there in the pleura, but no effective collapse was obtained. In February, 1924, a series of very severe hemorrhages occurred from the right lung, the bleeding being so free that blood was extravasated into the middle and lower parts of the lung and some could be heard in the left lung. In spite of all the ordinary and extraordinary measures to check bleeding, the hemorrhages continued until the patient was exsanguinated. His recovery this time was very slow.

In April, after surgical consultation, it was decided that surgical collapse of the right chest was advisable. X-ray at this time showed an increased fibrosis of both lungs as compared to previous films but more increase on the right side. Coagulation time was incomplete in 13 minutes and general condition was poor, so operation was deferred.

At present time (November 1st), patient is in good general condition; coagulation time is six minutes; sputum is one-half ounce and no T. B. are found. The physical signs are those of sluggishly active disease throughout the right side the rales being most numerous over the midportion. No rales are heard on the left side. The x-ray reveals fibrosis on both sides, more on the right, with a fair amount of diffuse parenchymatous density in both upper lobes. This is not in accord with physical findings. Through the oversight of the clinician, the roentgenologist was not informed that blood had been spilled into the lungs last February; in view of the productive pneumonitis which follows this accident, this information is important and would probably modify the x-ray interpretation. The fluoroscope shows, as it has for a long time, pleural density on the right, with decreased

movement of the diaphragm. On deep inspiration, the mediastinal structures are pulled to the right by the ribs.

Physical Examination (November 7th): Negative except for chest. Expansion diminished on right; resonance impaired over entire right lung. Tactile fremitus increased; muscular tone noticeably increased as compared with opposite side. Auscultation reveals over the apex broncho-vesicular breathing, while lower down, even to the base, expiration is prolonged and harsh. Numerous fine rales, as of atelestasis, are heard over the entire right lung, while moderately coarse moist rales, characteristic of active tuberculous disease, are heard over the midportions of the lungs in front and in the back. Voice and whisper sounds are increased throughout, but most over the apex and about the root. Signs over the left lung are limited to impaired resonance, harsh breath sounds, and increased whispered voice, from apex down to level of third rib and fifth dorsal vertebra. No rales on left side.

Indications for thoracoplasty:

(1) History of repeated hemorrhages from the right lung.

(2) Clinical and x-ray evidence of extensive disease of that lung, while the other has been clinically sound for two years.

(3) The demonstrated impossibility of artificial pneumothorax.

(4) The economic condition of this patient, an uneducated laborer, who has exhausted the resources of his family and of organized charity, without material improvement, and with little chance of economic recovery.

Under gas-oxygen and novocaine anesthesia (Dr. Carson), most of the third, fourth, fifth, sixth and seventh ribs on the right side were removed. Pleural space not opened.

Patient made excellent progress after the operation, though with more than the usual amount of oozing from the wound, owing to the fact that he is a hemophiliac. The collapse is evidently good, since he is now (December 1st) passing through an attack of influenza, but has had no hemorrhage. Prospects appear good.

CLINIC ON GENERAL SURGERY

E. PAYNE PALMER, M. D., F. A. C. S.; CHAS. S. VIVIAN, M. D., and FRANK J. MILLOY, M. D., Phoenix, Arizona.

(Held before the Medical and Surgical Association of the Southwest, at St. Joseph's Hospital, Phoenix, Arizona.)

CASE 1

November 7, 1924

Mrs. F. E. C., American, housewife, examination 10|20|24.

Working diagnosis: Ovarian cyst; salpyngitis chr.

Chief Complaint: Began six months ago, with decided pain on left side, always feeling of distress in this with occasional attacks of severe pain; occasionally lately has watery discharge, rather profuse at times, for several days. Has lost 15 pounds weight in six months. Menstruation has been regular, not painful until last two months, when lasted only one day.

Past History: Had measles and mumps during infancy, without complication. At fifth year was taken from school until eight years, with "nervous breakdown." Began to menstruate at 13 years, regular every 28 days, three days duration without any discomfort; 16th year "nervous breakdown," four months duration. Appendix removed, age 20 ;complete recovery; no complications, except "ether cough" and relapse of six to seven months. Came to Arizona same winter (says not for health); married, age 22; first child at 23, normal in every way. Spring and summer 1918 "nervous breakdown" caused by pyorrhoea. August, 1919, lost child; normal birth (no history of miscarriage). Nervous trouble, spring, 1921, of several months' duration (with diagnosis of cystic ovary at time).

Physical Examination: Abdomen: Tenderness of left side both anterior and posterior, most marked in lower portion of iliac region. First percussion of left kidney produces pain which lasts a few minutes.

Genito-Urinary: Tenderness over left kidney when kidney is brought into examination under deep breathing; tenderness extends over entire length of left ureter. First degree perineal laceration, small cervical laceration. Cervix and uterus normal in size; uterus a little more sensitive than normal. Small mass in left side of pelvis extremely tender to pressure, freely movable. Cystoscopy; Urine from each kidney normal and sterile.

X-ray: (10|30|24): "The radiograph of this injected kidney does not show enlargement of the pelvis nor definite abnormality in outline of the pelvis and calyces. There is an incidental finding of sacro-iliac arthritis with lipping at the lower margin and abnormally wide spaces in the joints."

(11|3|24): "The radiograph of this left kidney and ureter shows the pelvis and calyces well outlined and ureter normal size, without noticeable pathology.

White count: 19,000; 77 percent polys.

Special: During both pregnancies patient had mild degree of mental disorder which was most marked during second pregnancy and continued for some months after delivery.

Comment: This case is presented for operation because of the questionable character of the case. She had previously gone through one of the large Eastern clinics without a diagnosis having been made other than that of cystic ovary, which we questioned, but as this was the only possible source of her trouble we decided to do an exploratory operation under nitrous oxide oxygen novocaine solution injected locally.

A left lower paramedian incision about three inches in length was made, and the abdomen explored. All the abdominal contents were found to be normal with the exception of the left ovary, which was about twice normal size, which showed a multiple small simple cyst. The abdomen was closed in the usual way with the catgut and silkworm gut.

The patient suffered no post operative inconveniences. Sutures were removed on the morning of the eighth day, and the patient returned home the same afternoon. She has been entirely free from pain since the operation, and says that she has not suffered any of the old discomfort which annoyed her prior to the operation, so we believe that we were justified in operating this case without having made a definite diagnosis.

CASE 2

Mrs. M. E. H., age 30, colored—housewife—examination 11|17|24.

Working Diagnosis—Toxic goiter.

Chief Complaint—Began at ago of nine with swelling on neck and choking sensation in throat and very nervous. This has been present all her life with intervals of year or so would have none of above symptoms, with recurrences at 11th, 13th, 15th, 20th years; at 25th year following a miscarriage at beginning of menses, 13th year, very bad for year or so. Scarlet fever at 23, with bad nervous attack, lasting practically until present. (During 25th year much worse, had miscarriage at this time.) Last two years has had neuritis.

Past History—As child was large, well developed and healthy until ninth year, when goiter developed. Had diseases of childhood without complications, except scarlet fever at age of 23, when goiter was much worse, for months. Had pneumonia in 1918, three weeks' duration with constant looseness since. Began to menstruate at 13; very irregular, taking 4-5 days' but always painful, passed clots with moderate amount of blood; one miscarriage at two and one-half months after marriage; never pregnant since. Sixteen years ago began to have hemorrhage from throat, at first few mouthfuls of blood, until now very profuse at times. Tonsils removed six years ago. Curettage seven years ago following miscarriage.

Physical Examination X-Ray—"Abnormal hilus densities in form of fibrous deposit and some diffuse streaked densities through both lungs, shadows not localized nor characterized of T. B." Heart slightly enlarged in all directions. Blood pressure 130-80 mm.

Special—All reflexes exaggerated—marked tremor of fingers on extending hands and arms to tension. Extremely nervous. Metabolism plus 13. Urine; normal white count, 9,900, 68% polys.

Operation was performed under nitrous oxide oxygen anesthesia; partial bilateral thyroidectomy was performed, and the usual incision was made in fold of the neck in order to assist in lessening the appearance of the post operative scar. Moderate bilateral enlargement of the gland, including the isthmus, was found. Partial bilateral thyroidectomy, including the isthmus, was performed. About three fourths of the gland was removed; the muscles and fascia were closed with No. 1 plain catgut, a small drain was inserted, and the skin closed with clips.

Patient made satisfactory convalescence. The drain was removed the following day; patient sat up in bed the third day; was out of bed on the fifth day, and returned home on the sixth day. At the present time she is free from any of her former symptoms; has had two menstrual periods since the operation without any pulmonary hemorrhage.

Tissue Examination—Thyroid sections show the follicles small and very cellular. In part of the sections there is colloid material; in some areas the follicles are filled with lymphatic cells. Fairly well marked cellular hyperplasia, representing a toxic goiter.

NOTE: This woman was sent to Phoenix with a diagnosis of pulmonary tuberculosis because of the fact that she had frequent pulmonary hemorrhages. It was only recently that a careful examination was made and the real trouble detected. We believe that she will continue in normal health and not suffer further from the hemorrhgaes.

CASE 3

Mrs. M. H. S., age 36, housewife, Russian, examination 11|6|24.

Working Diagnosis—Full term pregnancy with deformity of pelvis.

Past History—Was normal, healthy child until eight years old, when developed hip joint disease as result of previous mumps and cold following; was in hospital three years following, with five different operations with apparent cure; left bony deformity and shortening of leg. Had suppurating gland in neck same time, supposed to have originated with mumps. Began to menstruate at 17th year, always regular, 30 days, four days duration with bearing down sensation first day. Married age 31; became pregnant after 6 months; perfectly healthy during pregnancy; measurement of pelvis showed birth canal too small. Dr. Geo. P. Brood of Syracuse, N. Y., did Caesarian operation.

Physical Examination—Abdomen negative except for large scar from previous Caesarian operation and full term pregnancy with contraction of pelvic outlet due to T. B. hip joint disease.

Otherwise negative.

Operation: Under nitrous oxide-oxygen-novocaine anesthesia, incision was made through former abdominal Caesarian scar. Dense adhesions from previous operation were found; omentum was adhered to the uterus, so that we were able to make our incision through the uterus without going into the free peritoneal cavity. A full term normal baby was removed and the uterus closed with three layers of catgut. The abdomen was closed in the usual way with catgut and silkworm gut. This patient made satisfactory convalescence.

Post Operative Note: Hypodermics of morphine sulphate were required after the operation to relieve pain. Sutures were removed on the eighth day and the patient allowed to get up. She returned to her home on the 10th day in a very satisfactory condition. Since the end of the second week she has been doing most of her housework, and at the present time is in normal health. The baby is progressing satisfactorily.

This case demonstrates the importance of not tying off the tubes in order to prevent further pregnancies. A surgeon has no right to do this, and when he ties off the tubes to prevent future pregnancy he commits a crime against both the individual and the state.

CASE 4

Mrs. A .S. H., age 27, colored, married, examination 11|5|24.

Working Diagnosis—Chrronic appendicitis.

Chief Complaint—Began nine months ago, with aching in left side of lower abdomen, much worse before menses; always present, growing worse with development of whitish vaginal discharge three months ago.

Past History—Had measles, mumps, chicken pox, small pox, during childhood without complications or after effects. Began menstruate at 13 years, always regular, lasting three days, without pain until recent months very painful, irregular, passing clots, lasting four to five days with profuse bleeding. Married 12 years; first pregnancy, normal delivery; no laceration; one year later had gonorrhea; lasting one month with frequent, painful urination, slight discharge; and from then until 10 months ago was healthy, when present trouble began.

Physical Examination—Tenderness over lower abdomen, most marked on left side. Cervix moderately enlarged, uterus enlarged, tender, slightly antiflexed, movable; large mass on left side fairly well fixed, believed to be a large pyosalphinx. Right ovary and tube palpable and tender; this is believed to be a state of chronic inflammation.

Operation: Under ether anesthesia; a lower left paramedian incision four inches in length was made and the abdomen explored. Appendix was found chronically inflamed and adhered. There was a double chronic salpingitis, and a large left-sided intra-ligamentous fibroid growing from the left side of the uterus. It was this tumor which had been erroneously diagnosed as a large pyosalphynx.

Appendix and both tubes were removed and the intraligamentous fibroid enucelated; and the abdomen closed in the usual way with catgut and silkworm gut. This patient had no post operative discomfort of any

kind; sat up in bed the third day; was in wheel chair on fifth day; sutures were removed on the morning of the seventh day, and patient left for home that afternoon. At the end of two weeks she had resumed her duties as chambermaid in a hotel.

Note: This case demonstrates the importance of operating to relieve patients of pathological conditions which interfere with the performance of their duties.

CASE 5

Mrs. R. J. B., age 26, white, housewife, examination 11|6|24.

Working Diagnosis—Cholecystitis,- with lithiasis.

Chief Complaint—Began one year ago, ten days after baby was born. Attacks consist of intense, excruciating pain in mid-epigastrium, which radiated to her back and into the shoulder. Has had as many as three spells a day. At first would get relief by taking soda, and then inducing vomiting; pain finally subsiding in about an hour, but as soon as she ate, pain would start again. Eventually had to have hpyo of morphine to get relief. Had severe spell about ten days ago, which was first spell in three months, but patient did not fell well for six weeks preceding spell. Feels better now between spells; stomach gives no trouble, but at time of spell any kind of food will produce pain. Lost 55 pounds during first four months of trouble. Has lost ten pounds more, bowels very constipated, has some soreness in upper abdomen, but has constant pain in back. A week after above history was taken patient was seized with an acute attack of pain in the region of fourth intercostal space anteriorly which pain radiated through to back. This attack of pain lasted three days. Was accompanied by no rise in temperature or pulse rate, nor associated with pain or tenderness over gall bladder. Not accompanied by any gastric symptoms but was most intense and most excruciating on any moving of body, i. e., attempting to sit up or on deep inspiration; was relieved only by hypo of morphine.

Past History—Acute appendicitis and operation two years ago, several attacks of influenza in 1918, aborted an eight-month baby. Had influenza again last winter. Tonsillectomy 12 years ago. Still has sore throat. Scarlatina, measles, mumps. Before trouble began, menstrual periods were regular, now periods are about every three weeks. Five pregnancies, first twins, one living, and three other living children.

Physical Examination—Abdomen—Incision of old appendectomy—area of marked tenderness along right costal border on deep palpation. No rigidity, no tumors palpable.

X-Ray—"In the fluoroscopic examination of this stomach we show indentation into the outer side of the pylorus, which must have been produced by a distended gall bladder. This is shown on the films, although no other outline of gall bladder was obtained. We did not show stone shadows, nor any organic defect in stomach or duodenum. This finding would be interpreted as distended gallbladder, but could not be diagnosed as chronic condition without obtaining gall bladder outline."

Preoperative diagnosis is chronic cholecystitis. Operation under nitrous oxide oxygen novacaine.

A right upper paramedian incision was made, the abdomen explored, gall bladder was found to be adhered to the first portion of the duodenum, enlarged, thickened, and contained numerous stones of various sizes. Exploration of the abdomen showed the other abdominal contents to be normal. The gall bladder was removed in the usual way and a wick drain inserted down to the seventh cystic duct, and the abdomen closed in the usual way with catgut and silkworm gut.

This patient had some post-operative pain, which required a few hypodermics of morphine, but otherwise there was no disturbance. She made a very satisfactory convalescence. Sutures were removed on the 10th day and the patient left for home on the 14th day. She has continued to improve in general health and has had no discomfort since leaving the hospital.

Note: This case demonstrates the importance of a careful examination to determine with accuracy the diagnosis. This patient had been ill for a year, has suffered excruciating pain and has been under the care of good physicians.

Not until Dr. Milloy made a careful examination was a diagnosis determined and the operation advised which will be certain to relieve this patient of her trouble.

The following discussion on the last two cases was presented by Dr. Milloy:

DIFFERENTIAL DIAGNOSIS OF THE MORE COMMON ABDOMINAL DISEASES

(By Dr. Frank J. Milloy)

In attempting to differentiate between the more common causes of

chronic dyspepsia, namely, peptic ulcer, gall-bladder disease, chronic appendicitis and carcinoma, it is probably advisable to recall a few statistics as to the relative frequency with which these conditions occur.

About 20 percent of such cases are due to gall-bladder disease; about 10 percent are due to peptic ulcer, and from 1 to 3 percent are due to carcinoma. The statistics on chronic appendicitis are much more favorable, I would say probably 5 percent, or less.

When the element of pain is present in these conditions, it is as a rule much easier to arrive at the correct diagnosis because the character of pain offers some clue as to the case in question. For example, if pain is present in gallbladder disease, the patient gives a history of frequent attacks of colic in the upper abdomen, associated with the stomach, and very often requires morphine for relief. In case of ulcer, the patient has pain which is less severe, but more constant. The pain which comes on from one to three hours after meals, which is relieved by the ingestion of food, the administration of alkali, or emptying of the stomach of its contents. If pain is present in chronic appendicitis, the patient no doubt has acute exacerbations with more or less typical symptoms of acute appendicitis. The pain of carcinoma is not so typical. But pain is absent in the majority of cases suffering from chronic dyspepsia, and in these instances the patient's symptoms are generally gastric.

Very careful clinical history is probably the most important factor in determining the diagnosis. Peptic ulcer would be the first condition to rule out, and easiest to diagnose, because in this the history is probably 90 percent of the diagnosis. We obtain the well known syndrome:

1. The distress coming on from one to three hours after meals.

2. Distress alleviated by the ingestion of food.

3. Distress which is relieved by the administration of alkali.

4. Distress associated with free HCl.

5. Distress which is absent when the stomach is empty.

Physical examination may reveal a finger point area of tenderness in the epigastrum. If there is doubt regarding the diagnosis, the therapeutic test will always determine whether or not we are correct.

If the patient is placed on accurate ulcer management, that is, if the free HCl is controlled at all times during the day and night, the patient's symptoms will be relieved after two or three days, at most. If, after two or three days' treatment there is very little change, if any, in the patient's symptoms, peptic ulcer is very likely absent or not the cause of his suffering; furthermore, if he is suffering from any other condition and especially gallbladder disease, ulcer management is more than likely to make the patient worse; that is, he will be unable to take the hourly dose of alkali without producing nausea, and very frequently, vomiting.

In gallbladder disease we find the chronic type of dyspepsia with food selection, early distress after seating, gaseous indigestion, belching. Epigastric distress radiates through the back and right shoulder blade; there is also a history of bilious spells, or attacks of acute indigestion.

Two clinical types of disease present themselves in the taking of such histories: (1) Attacks of gallstone colic for years and then the gradual onset of chronic dyspepsia; (2) chronic dyspepsia with attacks of acute indigestion, and later the severe biliary colic.

The fact that gallstones may be present without causing attacks of colic is well known. Many surgeons now believe that they cannot definitely diagnose the condition of gallbladder by inspection and palpation: they recognize that the diagnosis and surgical treatment of gallbladder are in many cases based upon a careful clinical history and diagnosis reached by study and exclusion before the

abdomen has been opened. If the careful diagnostician says the gall-bladder should be removed on the clinical and physical evidence, the surgeon must seriously consider his responsibility in saying that the gall-bladder appears normal and leaving it alone. If the clinical evidence is good, and there is no evidence of other causes for the patient's suffering, the surgeon will probably remove the gall-bladder.

In regard to x-ray findings, the latest statistics show that gall-bladder is demonstrable in 40 percent of cases proven pathologic at operation. A method of examination which will show existing trouble in only 40 percent of cases gives very poor negative evidence to guide the diagnostician. We can only say if the x-ray is negative, we must disregard the x-ray. These statistics do not include the indirect signs of gall-bladder disease, such as indentations into the stomach or duodenum produced by distended gall-bladder. We have found on repeated occasions of late where Dr. Watkins has reported this as the only demonstrable finding on x-ray examination that the gall-bladder is diseased at operation.

X-ray statistics for ulcer vary from 20 percent to 85 percent. I will only say that in many cases of suspected ulcer, it requires the x-ray examination, along with the clinical history and laboratory examination, of the stools and stomach contents, and even the therapeutic test before we are certain of the diagnosis.

The difficulty in these cases is, however, very often that more than one condition is present in the stomach. Statistics show that 15 percent of chronic peptic ulcer have some degree of gallbladder infection, by extension from the ulcer. In such cases it is very necessary to recognize ulcer symptoms and to determine whether relieved by the ulcer treatment. If chronic appendicitis can be demonstrated by the x-ray, or if definite tenderness can be elicited over the appendix, or if chronic dyspepsia is present, and upper abdominal disease is ruled out, it is sometimes safe to make diagnosis of chronic appendicitis. Forty percent of gallbladder disease show appendix involvement.

However, about one-half of the patients who complain of chronic dyspepsia have had their appendix removed without relief. On the other hand, many cases of chronic appendicitis in whom the appendix is not demonstrated in the x-ray continue to suffer from gastric symptoms until an acute attack develops, or until the appendix is discovered during exploratory operation, or during operation for some other condition.

Gastric carcinoma presents in its early stages more laboratory findings on which to base a diagnosis than any other of these conditions. About forty percent are engrafted on an old gastric ulcer.

Carcinoma of the stomach or intestines always bleed into the bowel. If other causes are excluded, and repeated stool examinations are positive for occult blood by Weber, this offers one of the most conclusive findings for diagnosis of cancer. In cases where cancer is developing in the site of ulcer, if these patients are placed on accurate ulcer management and blood does not disappear from stool within ten days to two weeks, there is very probably cancer developing. Immediate exploratory operation should be insisted upon. If one waits for the symptoms of obstruction with lactic acid, Boas-Oppler bacilli present in the stomach contents, or until the cancer is demonstrated by the x-ray, the diagnosis has been made too late to operate and save the patient's life.

There are other early symptoms in carcinoma which are very suggestive, such as anorexia, nausea and vomiting, low gastric acidity and distress which is not relieved by the administration of alkali. In these cases if we are certain that the stomach lesion is present, and syphilitic ulcer has been eliminated, the condition is very suggestive of carcinoma.

In cases where free HCl is absent from the gastric juice, it is necessary

to determine whether or not we are dealing with achylia gastricia or with a stomach which has ceased to secrete HCl. If rennet is absent from the gastric juice, we are dealing with a case of true achylia gastricia; if rennet is present, we are dealing with a case in which free HCl has been present in the stomach at some former time. If some constitutional disease is not present, carcinoma of the stomach is very lilkely to be developing.

One other rather common condition, sometimes present in itself and sometimes associated with any of the above conditions, is entero-spasm, and irritable colon. The attacks of pain may occur in this condition with all the severity to resemble biliary colic. However, this condition can be very readily recognized if the patient is seen in the acute attack. If a test enema is given, that is, an enema of at least two or three quarts of water, this will distend the spastic condition of the colon and the patient will be relieved at once. The same result can be obtained by giving a barium enema under the fluoroscope.

MEDICAL CLINIC ON GASTRIC ULCER

DR. F. J. MILLOY

(Given at St. Joseph's Hospital During Meeting of the Southwest Medical and Surgical Association, November 7, 1924, Phoenix, Arizona.)

The following cases of peptic ulcer which have been treated by the regular ulcer management, as outlined by Sippy in Oxford Loose Leaf Medicine, Nelson's Loose Leaf Medicine, the Medical Interpreter, and numerous other publications, were shown.

CASE No. 1. UNCOMPLICATED GASTRIC ULCER

H. S.: Salesgirl, age 21 years.

Stomach trouble began about four months ago. Gnawing pain in the stomach which is not present in the morning, but comes on about 11:30 a. m. Has lunch at 1:30; pain seems to be relieved, but comes on again about 3 o'clock in the afternoon and lasts until about 4:30. Had to quit work twice in the afternoon. The pain seems to be more severe in the afternoon than any other time of the day. Has often noticed gnawing about 6 or 6:30 in the evening. Has dinner about 6:30 and always seems to feel better after eating, but about one hour later the pain begins again. The pain would ease up when she went to bed until the past three weeks, when it has lasted until almost midnight, keeping her awake, and sometimes has kept her awake most of the night. Often has gas after supper, which is relieved by taking soda, one level teaspoonful. Bowels are very constipated; belches a great deal; vomited once.

Physical Examination: Patient is poorly nourished female about twenty-one years of age and is apparently suffering some pain. No evidence of jaundice. Teeth are in good condition. Tonsils are enlarged. Heart and lungs are normal. Has marked tenderness across upper abdomen. No rigidity, no palpable tumor, no abnormal reflexes, no adenopathy.

Laboratory Findings: X-ray—"X-ray examination of this stomach with barium meal, checked on the second morning with a re-examination, shows a constant filling defect on the inner side near the pylorus, having the characteristic appearance of ulcer. We found nothing suggestive in the ileo-cecal region, although the appendix was not visualized at any time. However, the cecum was movable and there was no definite tenderness."

Urine: Negative.

Ewald: Free acid, 15; total acidity, 40; trace of blood by Weber; microscopic examination negative.

Wasserman: Negative.

This case followed the regular ulcer management, the first three weeks in bed. She has had none of the pain since the first day of treatment.

CASE NO. 2. PYLORIC ULCER WITH OBSTRUCTION

J. H.: Male, age 29 years.

History of Complaint: Began about five years ago. Has a burning distress in the abdomen which comes on any time from one to six hours after a meal. Never is relieved until he vomits. This always gives complete relief. This distress comes on both forenoon and afternoon. Seldom, if ever, comes on in the evening, but ever since trouble began and every night during the past three months he has been awakened between twelve and three in the morning with the distress, at which time it is most severe, and he always vomits before he gets any relief. Vomits part of his evening meal at this time and always a large amount of bitter fluid contents. Has vomited food he ate eighteen hours previous. Never vomited blood. Acid foods like tomatoes and onions always pro-

duce distress. Meat does not always cause it. Bowels have been constipated ever since trouble began. If he takes soda at the time distress is present, always vomits.

Previous History: Was gassed in France in 1918. Has severe sore throat which resisted all treatment in 1920 and had x-ray of chest made which was diagnosed active pulmonary tuberculosis. Coughs a great deal now and raises considerable sputum. Runs afternoon temperature of 98 to 100 majority of time. Had tonsils removed while in service. Had measles and malaria during early life.

Physical Examination: Patient is a fairly well nourished male about thirty years of age. Skin is clear, no evidence of jaundice. Head and neck are negative. Throat shows evidence of chronic inflammation. No evidence of tonsils. Chest: Some retraction in both supraclavicular and infraclavicular spaces; no impairment of dullness; lung borders normal; no rales. Heart: No enlargement; no murmurs. Abdomen: Marked tenderness to right of umbilicus extending from upper quadrant and well down into lower derness to right of umilicus extending from upper quadrant and wel ldown into lower quadrant; colon palpable but not tender on left side; no rigidity, no palpable tumor. Reflexes: Knee jerks considerably accentuated. Eyes: Pupils, equal; react quickly to light and accommodation, but some rebound. Inguinal adenopathy quite marked, but no other appreciably enlarged glands.

Laboratory Findings: X-ray Examination: "The barium meal examination of this patient's stomach showed normal cap and fairly constant filling defect just proximal to the pylorus on the lesser curvature, apparently extending into the pyloric ring. On only one of the series of films did we reproduce the fluoroscopic appearance and on none of the films was the cap properly outlined, although this seemed to be normal under the fluoroscope. There is, however, a fairly constant defect on the inner side of the cap on the films and we would not be at all surprised that this patient has a duodenal ulcer, even though there was not seen under the fluoroscope. Appendix was outlined at six hours being rather long, irregularly filled and with some sensitiveness. At twenty-four hours the colon was empty, appendix containing small portion of barium in the distal portion.

The radiograph of the chest showed some abnormal density in the upper lobe, especially marked over the left apex and first interspace, the shadows not being definitely characteristic of active disease."

Ewald: Amount, 6 oz. Free acid, 35; total acidity, 48; blood test, negative by Weber. Microscopic examination, negative.

This patient was placed under regular ulcer management, with the first three weeks of absolute rest. He has had no pain and has not vomited since the treatment first began.

At the beginning of treatment there would be a residue in the stomach at 9:30 at night of from 15 oz. to 30 oz., while the patient was taking only his medicine and the milk and cream. At the end of the three weeks, at which time he was taking four daily feedings, the 9:30 residue was reduced to 3 or 4 oz., containing no free HCl.

After following his treatment for four weeks, even though all gastric symptoms were relieved, this patient did not gain weight and did not seem to improve in strength as he should. He had had a diagnosis of active pulmonary tuberculosis made in the east in 1918, following which time he went to Denver and had the diagnosis confirmed. Later, he came to Phoenix with the same complaint. The x-ray of the chest showed defininte evidence of pulmonary tuberculosis, which appears to be arrested at the present time. Physical examination does not reveal activity. A provocative Wassermann was made and returned 3 plus.

This case is interesting from the fact that even though this patient has had syphilis, his tuberculosis has become arrested. Also, from the fact that he has a definite peptic ulcer which was completely relieved by ulcer treatment and apparently has no relation to his lues.

His treatment for the latter condition is now beginning.

CASE NO. 3. DUODENAL ULCER WITH IRRITABLE COLON

R. J. M.: Male, age 37 years.

History of Complaint: Patient says he has had stomach trouble ever since he had typhoid fever at 16 years of age. Occurred in spells every three or four months and lasted about a week each time. Developed pulmonary tuberculosis in 1913, and since that time has had almost continuous trouble. It consists of a burning gnawing distress in pit of stomach, accompanied by sourness which comes on two or three hours after eating. Comes in forenoon, also in afternoon and at bedtime. For years has been awakened about two a. m. with distress. During past three months always takes bottle of milk to bed with him, which always relieves the distress. Stomach always feels better with something in it and bothers him most when it is empty. Has been consti-

pated for past few years. A physic always makes him feel worse on the following day. Has a tenderness in left lower quadrant which is made worse by a physic, and when bowels don't move satisfactorily. Takes enemas most of the time. Does not recall having black, tarry stools.

Previous History: Typhoid at 17. Developed tuberculosis in 1913. Had one severe pulmonary hemorrhage in 1914.

Laboratory Findings: "X-ray examination of this patient's colon with a barium enema showed normal contour and position without filling defects suggestive of pathology. We would not consider that there is a ptosis present.

Radiograph of the chest shows old chronic cavity at the left apex with fibrous pleura and slight retraction of the heart into the left side. On the right side there are old discrete fibrous densities at the apex and at the hilus, the shadows present being chiefly those of healed tuberculosis.

In the fluoroscopic examination of this stomach for possible ulcer, we found definite deformity on the posterior surface of the cap, with the patient properly angled, to see this side of the cap. This ulcer, as we anticipated, is not plainly shown on the films, but it was quite evident under the fluoroscope."

Ewald: Amount 4 oz. Free hydrochloric acid, 49; total acidity, 68; blood test, positive; microscopic examination negative.

Stools are positive for occult blood by Weber.

This patient was placed on the regular ulcer management, but his colon was so irritable that he developed profuse diarrhea while taking the No. 1 Powder, so we omitted the soda bicarbonate and gave him only calcium carbonate grs. 30, according to schedule. His gastric symptoms disappeared at once, but he had considerable disturbance with the bowels.

At the end of two weeks, with the aid of one to three tablespoonfuls of petrolagar daily, his bowels move without the aid of an enema, although considerable soreness persisted.

At the end of three weeks, when green vegetables were added to his diet, the bowel condition is almost completely relieved. The stools are normal in every respect, and he experiences only slight discomfort in the morning before his bowels move.

This case is interesting from the fact that the patient presented himself complaining only of his obstinate constipation, and made no reference to his gastric symptoms; these were only elicited after very careful questioning.

CASE NO. 4. GASTRIC ULCER WITH ACUTE HEMORRHAGE

A. P. L.: Male, age 46 years.

Patient never was sick in his life until four days before entering hospital, at which time he vomited a large quantity of blood and then fainted.

A few times during the past two weeks the patient says he had some discomfort in the abdomen, coming on about an hour after breakfast, and also after dinner, but never in the evening.

Before entering the hospital the following x-ray report was made:

"X-ray examination of this stomach showed well marked filling defect on the lesser curvature, just promimal to the pylorus. This is in the form of a deep incisura, lying just beyond a niche. Patient had had milk about an hour before coming for examination, so that it was necessary to repeat it. On re-examination the same filling defect was found, so that this is undoubtedly a well developed pyloric ulcer."

Upon entering hospital physical examination showed head and neck negative, except teeth showed marked pyorrhea; heart and lungs negative. Some tenderness across upper abdomen; no rigidity; no palpable tumors, skin clear; no adenopathy or abnormal reflexes.

Upon entering the hospital the patient was practically in shock. With the history of vomiting blood, he was placed on regular ulcer management after hemorrhage—that is, he was given alkali every 30 minutes during the day and every hour at night from 9 p. m. until 7 a. m. The stools, upon entrance, were the typical black, tarry stools produced by the presence of blood.

The blood count at that time showed: Hemoglobin, 40 percent; red cells, 2,540,000; leukocytes, 8300; urine was normal.

Two weeks from the date of entrance, the stools were negative for occult blood.

At this time the 9:30 aspiration of the stomach was taken and patient had practically no residue. It is deemed inadvisable to use the stomach tube in cases of acute hemorrhage until after the patient has been on treatment for ten days to two weeks, for fear of dislodging the clot either with the stomach tube or by retching on the part of the patient during the operation.

At this time Ewald test was made; amount recovered, 3 oz. Total acidity, 80 percent; hydrochloric acid, 63 percent. Blood test, negative by Weber. Microscopic examination negative.

After one month of treatment the following laboratory examination was made:

"Fluoroscopic examination of this patient's stomach showed the same filling defect on the lesser curvature, which we observed a month ago. The films taken at this time

also show definite indentation deformity from gallbladder pressure upon the outer side of the pylorus. We believe the element of gallbladder disease should be considered.

Radiographs of the teeth show an extensive alveolar infection involving all the teeth."

Blood: The Wassermann reactions were negative. Red cells, 3,410,000; hemoglobin, 40 percent.

This case is interesting from the fact that the x-ray shows an old chronic pyloric ulcer which no doubt has been present for years, but has never given any symptoms until the hemorrhage occurred.

The second x-ray report gives evidence of enlarged gallbladder. This has probably resulted from extension of the infection from the ulcer. However, the patient has no symptoms resulting from it.

At this time patient feels perfectly well, although he has not regained his strength.

If you will note, there has been quite a perceptible increase in the red cells, although no increase in the hemoglobin. Probably there will be no change in this until the patient can eat more green vegetables and red meat.

This patient will have all of his teeth extracted.

CASE NO. 5. EARLY GASTRIC ULCER

P. G. G.: Male, age 29 years.

History of Case: Typhoid fever as a child, also measles and mumps. Influenza 1918; no sequels. Hemorrhoidectomy 1921. Previous to operation bowels constipated. Last three years bowels have moved regularly; constipated again past month. Appetite good; has always been fond of sweets, and has been in the habit of "piecing" between meals. Sleeps well; had disturbing dreams during summer. Has frequently drunk to excess, but has taken no alcohol past six months. Smokes cigarettes. No venereal disease.

First signs of deranged digestion last May, following a "spree". Ate nothing for two or three days. Since then has periods when stomach was sour, with periods of normalcy. No. nausea or vomiting. Sourness relieved by soda bicarbonate. Since September this symptom has been almost constant, accompanied by gas in stomach and intestines. Feels more comfortable immediataely after taking food. Soreness on pressure on right side of abdomen on level with umbilicus, during past week. Has also had severe headaches the last few days; pain chiefly at back of head.

During the summer has decreased amount of carbohydrates eaten. For past month and half has taken no meat except bacon. Wednesday, October 8th, to Monday evening, October 13th, took only milk. Still had gas and burning symptoms. Monday evening vomited for first time, after eating eggs.

When present stomach condition first began, discomfort came on about two to three hours p. c. Recently the sourness has been coming on 30 minutes p. c.

Physical Examination: Patient is young, well nourished male. No evidence of jaundice. No apparent suffering. Head and neck negative. Tonsils enlarged. Heart and lungs normal. Abdomen: Some tenderness on deep respiration, to right of umbilicus; no rigidity; no palpable tumors. Eyes react to light and accommodation. No adenopathy. Blood: Wassermann tests negative. Some slight tenderness in region of cecum; otherwise negative. Stools negative for blood by Weber.

Laboratory Findings: "X-ray examination of this stomach with barium meal showed the stomach high transverse position, with considerable evidence of spasm, producing a temporary hour-glass deformity. This, however, soon relaxed and the pylorus and duodenum outlined. We found no visible filling defects in pylorus and duodenum at either one of two barium meal examinations. Patient complained of a definite sensitiveness which localized over the outer side of the cecum. The cecum was freely movable and appendix not outlined, so that we could not determine definitely the significance of this tender spot."

Ewald: Free acid, 45. Total acidity, 61. Blood test, negative by Weber; microscopic examination, negative. Stool: Blood test, negative. Blood: Wassermann reactions were negative.

Even though this patient's history is not very definite, the fact that he suffers from sourness and regurgitation of food from one to two hours after meals and of late coming on as soon as three minutes, combined with the evidence of the marked spasm in the cardia of the stomach, makes it quite evident that he must have an early ulcer in the body of the stomach, which is not in a position where it can be demonstrated by the fluoroscope.

At the end of three weeks he is following almost a general diet and has no sourness whatever, but occasionally, two or three hours after a meal, he regurgitates a small amount of his food, once or twice. This is evidence that his ulcer has been in a very acute stage.

CASE NO. 6. DUODENAL ULCER WITH MARKED PLOVOSPASM, CAUSING A HIGH GRADE PYLORIC OBSTRUCTION

History of Case: Malaria in 1906. Spinal meningitis in 1913. Ill in bed five months. Health has not been so good since then. Has a "dead feeling" mentally and physically. Appendectomy in 1922. Patient states he had had chronic appendicitis since attack of meningitis. Bowels extremely constipated, even when laxatives are taken. This condition has existed for five years. Appetite not good. Usually sleeps well. Mother died with "quick consumption"; otherwise, family history negative. In 1913, weight 187 pounds; present weight about 157 pounds.

Has had indigestion almost continuously since attack of meningitis in 1913. Appendectomy in 1922 relieved condition for about eight months, when obstipation occurred, and symptoms of indigestion recurred. Has had a continuous "hurting pain" in abdomen distended with gas and sore on pressure. Pain immediately after eating solid food, due, patient feels, to pressure of stomach contents. Dull "hurt" at back of head, at same time. Belches gas considerably, very sour. Past ten days (previous to admission) had been unable to retain solid food, vomiting about half an hour after eating. Has been able to work until admission. Careful general diet.

Physical Examination: Patient is a fairly well nourished male, about 35 years of age. No evidence of jaundice. Has an anxious look, as if enduring considerable pain. Head and neck negative. Throat not seen. Teeth in good condition. Lungs are negative; heart not enlarged; no murmurs. Abdomen: Scar of appendix incision. Some tenderness with point of maximum tenderness to left of midline just below level of umbilicus. No tenderness over gallbladder; no rigidity; no tumors; no abnormal reflexes. Eyes react to light and accommodation. No adenopathy.

Laboratory Findings: "In our x-ray examination of this patient's stomach with barium meal we did not at this first examination outline the duodenum on account of spasm, but at the second examination with careful position of the patient, duodenal cap was outlined and shown to be quite irregular in shape and very hypermotile. The irregularity is the typical contractural deformity of old ulcer. There was no delay in emptying the stomach, the meal at six hours being entirely in the ascending colon."

Ewald: Amount, 6 oz. Total acidity, 50 percent; free hydrochloric acid, 42 percent. Blood: Negative. Blood test on stools. Strongly positive. Urine: Normal. Blood count: Hemoglobin, 90 per cent; red cells, 5,000,000; leukocytes, 11,300.

This patient was placed on the regular ulcer management. At 9:30 p m. at the beginning, he had a residue of 30 oz., which at times contained free hydrochloric acid. He was given 60 grs. of Powder No. 1 every hour following the 9:30 aspiration until midnight, at which time his stomach was aspirated again. At the beginning, 6 to 8 oz. would be recovered from the stomach at midnight; at the end of two weeks the midnight aspiration was reduced to a few cc. The 9:30 aspiration still continued, ranging from 8 to 16 oz. At the end of four weeks, the 9:30 residue was reduced to a few cc. containing no free hydrochloric acid, and the hourly dosage of powder was omitted after 9:30.

At this time the patient left the hospital completely relieved of all gastric symptoms and was following a fairly general diet, and gradually growing stronger.

BOOK REVIEW

HUMAN CONSTITUTION. A consideration of its Relationship to Disease. By George Draper, M. D., Associate in Medicine at Columbia University, New York City. Octavo of 345 pages with 208 illustrations and 105 tables. Philadelphia and London. W. B. Saunders Co., 1924. Cloth, $7.50.

Since the time of Hippocrates many writers have described certain types of individuals in whom various diseases were to be suspected. Perhaps all physicians have, consciously or unconsciously, recognized certain individual characteristics, and their recognition has been an aid to diagnosis and treatment. Familiar to every physician is, for example, the tuberculous type, the gallstone type and others. Since Marie recognized acromegaly by the changes in distant structures the studies of the internal secretions have given to the study of the human body a tremendous impetus. In this work Draper attempts to find out by methods of precision what it is all about. He considers that there are four "Panels of Personality" which are available for study, the anatomical, the physiological, the psychological and the immunological. This work deals with the human body from the morphological standpoint. Its object is to correlate anatomical characteristics with disease. Essentially it is a meticulous study of the physical characteristics of a group of individuals including patients with gallbladder disease, pernicious anaemia, tuberculosis, asthma, gastric and duodenal ulcer and nephritis and hypertension. It is a lead to investigation in the vast field of disease potentialities, and their importance in diagnosis and in preventive medicine.

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THE HERNIA QUESTION

The following report of the Special Committee on Industrial and Occupational Hernia was presented at the Tenth Annual Session of the Medical & Surgical Association of the Southwest, at Phoenix, November 6th, 1924, and the recommendations of the Committee were adopted, without dissenting vote, as the expression of the Association and its members on the subject in question. Careful perusal of the report by all members of the medical profession of the Southwest is requested.

REPORT OF SPECIAL COMMITTEE ON TRAUMATIC AND INDUSTRIAL HERNIA

Dr. C. R. Swackhamer, Superior, Ariz., Chairman.

Dr. F. C. Diver, Dawson, N. M.

Dr. George A. Bridge, Bisbee, Ariz.

Dr. R. L. Ramey, El Paso, Texas.

Dr. F. T. Hogeland, Cananea, Mexico.

Submitted to the Medical and Surgical Association of the Southwest, Phoenix, Ariz., Nov. 6, 1924.

The committee to which was referred Traumatic Hernia, after carefully considering the subject and investigating the literature, find that it has been thoroughly covered in a treatise prepared by a special committee of the Medical and Surgical Section of the American Railway Association. We therefore wish to submit briefly their report and findings and strongly recommend their adoption by this association.

Since the first Workmen's Compensation Act passed in Germany in 1884, traumatic hernia has become of great practical importance, but no definite attempt has been made to standardize our knowledge of traumatic hernia, particularly as regards its etiology.

The term "traumatic hernia" has been used in a very general way to include, first, the small group of cases in which the hernia is due to direct violence; second, an occupational or "hernia of effort," which includes all of those cases in which the hernia appears during heavy lifting, slipping, falling, coughing, sneezing or any cause whatever which increases the intra-abdominal pressure; and, third, hernia of weakness which is due to abnormal or defective development of the abdominal wall at the various hernial sites.

The first group of cases is so exceedingly rare that it may be disposed of in a few words. In true traumatic hernia due to direct violence, the tissues must have been punctured by some more or less sharp object, which has forced its way at least through the muscles and fascia, if not quite to the peritoneum. The third group, hernia of weakness, due to congenital weakness through disease, causing atrophy of the muscles, is also very rare, as weakness alone without the presence of a preformed sac, rarely results in a hernia, no matter how great the intra-abdominal pressure. These are practically all of the direct type.

The very large group of cases which is ordinarily designated as traumatic hernia and which should be more properly called occupational hernia or hernia of effort, furnishes the bases of nearly all of the medico-legal or compensation cases of hernia. With the rapidly increasing knowledge of the subject, derived from a very large number of operations that have been performed in the last quarter of a century, our ideas of the cause of hernia have gradually changed. At present it is almost universally recognized that the all-important cause of hernia of all varieties is the presence of a preformed sac of peritoneum, known as the processus vaginalis. Russell of Australia, through his investigations, has forced us to conclude that practically all hernias are of congenital origin, due to this open pouch of peritoneum which has existed since birth. Unfortunately, courts and juries and compensation laws, here and abroad, have not kept pace with the developments of surgery and it is still not unusual to see large damages awarded in cases of so-called traumatic hernia. Russell maintains that an acquired hernia does not exist and recognized authorities on hernia have come to agree with Russell's conclusions.

Sellenings, from an investigation of the records of the New York Compensation Board, finds that thus far the commission has considered traumatic hernia as extremely rare, venturing the opinion that it occurred in possibly one of ten thousand cases.

One of the most recent and on the whole judicial discussions of the subject of traumatic hernia, is contained in a book on Industrial Medicine and Surgery, by Harry E. Mock, Assistant Professor of Industrial Medicine and Surgery at Rush Medical College.

Mock calls attention to the fact, that "the decisions of established medicine date back to the pre-compensation days and were based on the testimony of expert authority made in the courts of England especially, and later in our own courts, to the effect that a traumatic hernia could only occur from a direct violence, resulting in a definite tearing or rupture of the abdominal wall. All other hernias were claimed to be due to congenital defects, preformed sacs, and were similar to all other diseases, which might occur coincidental with occupation but not related to it. He states that, naturally few claims for traumatic hernia were made, although employes in those days, just as frequently as at the present time, blamed their work for the condition.

The greatly increased number of claims for compensation for hernia at present, he regards to be due, partly, to the new attitude on the part of industry, in the direction of recognition of certain moral obligations, as well as the realization that any improvement in the condition of employes renders them more useful and more efficient. He considers this humane attitude of a few industries, at the time of the passage of the employes compensation acts, was the cause of the decisions of various commissions often being at variance to those rendered by the courts in the past.

Mock fully agrees with the opinion of practically all surgeons who have had much experience with hernia, that hernias as a result of direct violence are very rare, and to include those due to other causes, under the

same name of traumatic hernia would greatly confuse the question.

Mock has personally observed only five cases of true traumatic hernia due to direct violence at the point where the hernia developed.

Mock admits that, "The great majority of hernias develop slowly, the gradual dilatation of a preformed sac. The congenital defect or predisposition is the chief cause for such hernias and the relation of natural occupation, or of the natural acts of ordinary life, are immaterial to their formation. These correspond to the gradual development of flat-foot, a result of faulty shoes, constant standing and walking or other natural causes; or to the development of tuberculosis in employes engaged in occupations, which in no wise predispose to this condition."

MacCready, the greatest English authority on hernia, states that an acquired hernia is never due to an accident or single increase of intra-abdominal pressure.

Graser, one of the highest German authorities, states that a hernia, complete in all its parts can never arise at the moment of accident or by a single increase in the intra-abdominal tension, be it ever so great.

The following is a ruling of the California Industrial Commission:

"The consensus of medical and surgical opinion runs to the effect that hernia is very rarely, in any proper sense, the result of an accidental injury, that the accident is at best no more than the occasion, instead of the cause of the malady; that the origin of the difficulty is congenital, and more in the nature of a disease than an injury; that every claim for compensation based upon an alleged rupture is to be viewed with suspicion."

The Nevada Commission rules:

"Medical science teaches now, what it has taught for the past twenty years and is now accepted as a medical and scientific truth, corroborated as such by the foremost surgeons and anatomists in the world, that hernia, or so called rupture, is a disease, ordinarily developing gradually, and is very rarely the result of an accident."

Hernia is practically always due, first, to the presence of a preformed sac or open pouch of peritoneum which, in the inguinal variety, follows the testis in its descent into the scrotum, which pouch has failed to close in normal way; and, second, to the prsence of structural weakness in the neighborhood of the hernial orifices due to poorly developed muscles or fascia. Given these all important anatomical causes, which are in themselves sufficient in many cases to constitute a potential hernia, the actual hernia may develop by reason of a great variety of existing causes; among these may be mentioned the daily increase in intra-abdominal pressure, incident to the ordinary routine of life, e. g., straining at stool, coughing, sneezing, lifting, etc. The main point that can not be emphasized too strongly is, that the hernia is never the result of a single strain or single increase in intra-abdominal pressure, due to any of the causes mentioned: on the other hand, it is the cumulative effect of a great number of strains, spread over a considerable period of time. In nearly all cases hernia is of gradual onset, is rarely accompanied by pain, and most frequently remains unnoticed until it has reached a considerable size, or until some accident or strain by slightly increasing the contents of the hernia sac, causes it to be noticed for the first time. Hence, the accident or strain is usually the occasion, which first attracts the attention to a hernia, long present but hitherto undiscovered.

At present the situation in regard to dealing with the question of traumatic or industrial hernia may be described as chaotic. There are, however, a few states in which the members of the Workmen's Compensation Commission apparently have made a scientific study of the subject before formulating any rules,

and, in these states, the subject is treated in a most fair and judicial way; in other states, however, the rulings are apparently based on the old and long discarded ideas as to etiology of hernia, with the result of great financial loss to the interested corporations and in the end distinct harm to the individuals.

What then is the remedy? The only thing needed to bring about greater harmony in the procedure of industrial commissions, is to spread broadcast a clearer knowledge of the well-known medical and surgical facts relating to the etiology of hernia. We must recognize that medical and surgical truths permeate but slowly, especially when they have to overcome long established traditions, too often supported by court decisions. The first is to convince the commissions and the courts of the well established surgical fact, that hernia is a disease and not the result of an accident. When this has been done a radical review of the present state laws regarding compensations in cases of industrial hernia will be forthcoming.

RECOMMENDATIONS

1. Render proper compensation for all cases of true traumatic hernia due to direct violence.

2. Make a physical examination of all applicants for positions in industry, no matter in which capacity; such examinations will determine the fact whether or not a hernia was present at the time of examination.

3. Any case of hernia developing in the course of duty, incident to the man's daily work, should be treated as a disease due to special anatomical weakness on the part of the individual, for which the company is in no way responsible. If it is considered wise under certain circumstances to recognize any moral responsibility, let it be on an economic or humane basis. This moral obligation should be understood to be strictly limited to such employes who had been found apparently free from hernia at the time of previous physical examination.

WELCOME

The following beautiful editorial tribute appeared in the Catholic Observer, published at Phoenix, Ariz., under date of November 8th, 1924. It was the intention of the publishers to distribute copies of the "Observer" at the recent meeting of the Southwest Association at Phoenix, but they issued too late for distribution. The publication carried two or three pages of information relative to the clinics at St. Joseph's Hospital, and the following editorial:

"In all the ages of the world, and in every condition of human existence, the physician holds an unique place. Whether, as in our own civilization, he represents in a particularly personal manner the advancement of true science, or, as in the vast spaces of the earth in which civilization is hardly more than a name, he unites a little knowledge of the natural forces with pseudo-priestly functions for the exorcism of the devils that cause toothache and stomach failures, he is a man of mystery, surrounded by strange potions and horriferous cases of instruments the brightness of which does not detract from our knowledge of their sharpness.

"But in whatever guise he appears to us, he always comes as a man of mercy. The specialist, highly trained, the best product of the universities, keeping abreast of the times in an unending round of work and study, means no more to us than does the witch doctor of the Manchurian steppes, whose chief remedy is a war dance and whose best training consists in the knowledge of the therapeutic values of dried lizards, mean to the incautious native who has overloaded himself with stewed goat. In each case he comes with a promise of relief, of surcease of pain, perhaps of the prolonging of life itself.

"To him, however, who proudly bears the name of Christian physician, is given the highest place in the estimation of mankind. To unite science with faith, to be as jealous of the ethics of his profession as of its exactitude of knowledge, to be as dependent upon the will of God as upon the virtues of the pharmacopeia, to consider the service rendered as of greater worth than the fee gained or the knowledge displayed—these are the distinguishing marks of the physician or surgeon upon whom the real advancement of the art of healing depends.

"And so, because it has been demonstrated again and again that the physicians and surgeons of the Southwest are pre-eminently of this character, they are welcomed by

Phoenix upon the occasion of the present meeting of their association. This welcome is the more sincere, perhaps, because the layman knows that he must participate in what good comes out of the convention. If the great majority of us whose knowledge of medicine is simply an uncertain wavering between the virtues of cod liver oil and a mustard plaster, did not have the inalienable privilege of developing aches and pains without interference, all the knowledge of all the doctors in the world would be worth nothing to them, and if we did not have the eternal right of breaking a leg on the cellar stairs at regular intervals the surgeon's office would be an exceedingly empty place.

"Therefore, a welcome to the physicians and surgeons of the Southwest is always heartfelt. We are as certain of the extent and thoroughness of their knowledge as we are of the fact that we cannot get along without them—doctors and cooks, we believe, are in this category—and we hope that they will leave Phoenix with as kindly thoughts of us as we will have of them."

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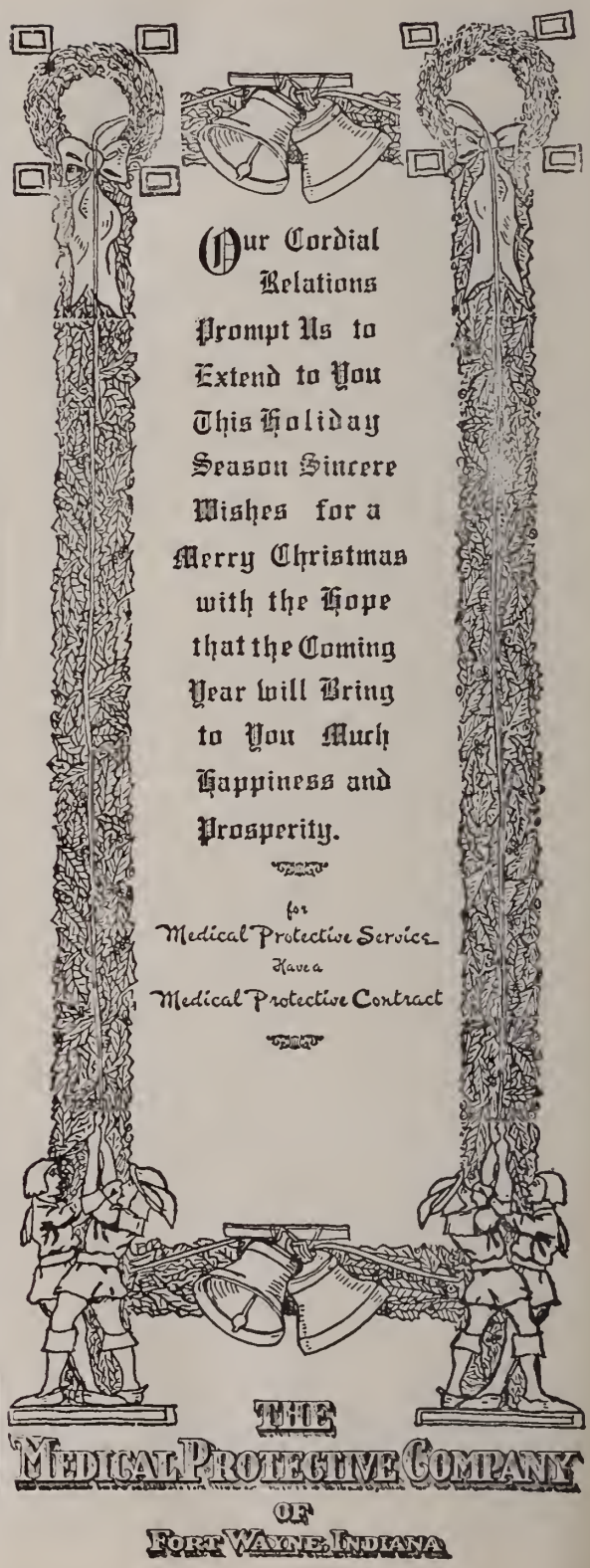
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MEETING OF THE STAFF OF THE ARIZONA DEACONESS HOSPITAL

(Phoenix, Ariz.)

The Staff of the Arizona Deaconess Hospital met in the Board room of the hospital November 22, 1924, at 7:30 p. m., with the following doctors in attendance:

Garrison, Ellis, Couch, Tuthill, Mills, Carson, Goss, McIntyre, Thomas, Smith, McCall, Schwartz, Bailey, Goodrich, and Brown.

Dr. Goodrich, chairman of the staff, called the meeting to order. The minutes of the last meeting were read and approved.

Under the head of old business the amendment to the constitution proposed by Dr. Watkins was read, and Dr. Garrison moved its adoption; seconded by Dr. Goss. After discussion of the amendment Dr. Tuthill moved that the chairman of the staff be a member of the Program Committee. Seconded by Dr. Garrison. The amendment to the amendment and the amended amendment carried unanimously.

Under the head of new business, Dr. Bailey reported that he had brought patients to the hospital with reports of required laboratory work, all duly signed by a laboratory man, and that the hospital had proceeded to do the same work again and to charge the patient for it; he said further that in his judgment this should not be done. Dr. Mills discussed the question by saying that while this had been the usual thing here, he saw no reason for doing laboratory work twice. Dr. Goodrich said certainly the patient should not pay twice for the same work when it was not requested by the physician. Dr. Couch asked if a white blood count is necessary for a patient with an acute cold and with a broken hip. Dr. Brown said the hospital is a co-partner with the doctor in caring for a patient and that the hospital must do certain routine investigation to properly protect itself.

Dr. Tuthill moved that the question of laboratory work being done twice be settled by having the chairman of the Staff take the question up with the hospital management. Seconded by Dr. Ellis. Carried.

Dr. Goodrich announced that the hospital now had an interne in the person of a young woman graduate of the University of Michigan, Dr. Helen Slaughter. Dr. Goodrich asked the question if the interne should write progress notes, and should be allowed to prescribe morphine, and what the staff thought

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3. The physician will be called upon to use one type for treatment in a chamber or home when the individual type would not be suitable, for instance in treating very small children. *Many physicians due to lack of space cannot have a chamber connected with their offices.* Therefore we have developed and placed on the market the Individual Type.

4. There are features connected with either type that permit of its use anywhere, and the greater quantity of pure chlorine gas in our cylinders insures a very low upkeep cost to the physician.

5. *The initial cost of the Gilchrist Chlorine Ejector is positively the lowest obtainable.* Simplicity of construction means low manufacturing cost. Still there has been no skimping that would detract from its efficiency, safety or appearance.

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Individual Type Chlorine Ejector is made of crystal glass and polished hard rubber with *no metal parts to corrode*. Attached is the inhaler made of non-corrosive parts. The carrying case is of mohagony finished wood.

THE Individual Type of Gilchrist Chlorine Ejector designed especially for physicians who find it impractical to install a chlorine chamber in their offices and also for the additional advantage enabling them to furnish to their patient an ejector that may be taken to the home or office.

The simplicity of this device will appeal to the medical profession, as the physician or his assistant can charge a dozen of these indvidual types in fifteen minutes and have them ready for service.

This type is operated on the same principle as the other Gilchrist Ejectors. Only 50 c.c. are needed for the hour treatment, being injected into the device direct from a cylinder of pure chlorine, the cylinder then being laid aside for future use.

With the outlet apparatus adjusted (suspended about the neck, and resting just below the nose of patient) the patient opens the control valve, thus permitting the gas to seep out over the period of one hour and the gas mixing with the air gives just the concentration required.

When filled this type can be carried to the home or office by the patient without any loss of gas, or the slightest danger. No complicated adjustment is required by the patient and it is absolutely safe.

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The physician or his assistant can easily turn into this ejector 600 cubic centimeters of pure chlorine gas, tighten a valve and the ejector is ready for use or transportation.

Upon entering the chlorine chamber or room in the home, the desired initial concentration is turned on, depending upon the cubical contents of the room.

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A chart accompanying the ejector gives required initial concentration for any sized room and required amount of seepage.

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her general duties should be. There was no discussion of these points.

Dr. Goodrich also said that the superintendent of the hospital wished to know if the staff would rule that every physician doing a curettment in the hospital have a consultation agreeing that the curettment should be done. Dr. Garrison asked what is the routine in Class A hospitals. The chairman said that the American College of Surgeons requires that there be the consultation.

Dr. Smith said that the College had not classed hospital as A, B, or any other class, but that hospitals are either recognized or not recognized as having attained certain minimum standards. Dr. Smith also said that every physician having a case for curettment should have a consultation. Others expressed themselves as favoring the consultation.

Dr. Mills wished to know if a consultant could be one who is not a member of the staff. The general expression seemed to be that the interne could serve as a consultant. Dr. Dysart said it was his custom to use his anesthetist as a consultant, in all curettments. There was no vote.

The following page of errors and omissions in history records was given to each member of the staff:

1. **Physical Examination Records.**
   (a) Diagnosis written instead of physical findings. No data to be found on which diagnosis has been based.
   (b) Positive physical findings stated, but no reference made to negative findings. The inspector of the A. C. S. requested that when findings were negative such should be stated.
2. **Progress Notes.**
   (a) A few of the staff doctors, only, make these notes twice weekly as desired by the inspector.
   (b) General statements occasionally made, such as "doing well," "satisfactory convalescence," when more detailed information, referring to the progress of the patient in relation to his signs and symptoms on admission, is indicated.
   (c) In post-operative cases no mention made of removal of sutures, condition of wound, change in drainage, etc.
   (d) The consultations not noted; professional opinion and advice seldom stated on this record.
3. **Operative Record.**
   (a) Pre-operative diagnosis written, but frequently no post-operative.
   (b) Names of diseases, particularly appendicitis, unmodified by "acute," "sub-acute" or "chronic."
   (c) Tissue reports on organs not referred to on Operating Room Record.
   (d) In detailed operative statements, note may be made that certain organs have been removed, and no mention be made concerning them in the Post-operative Diagnosis.

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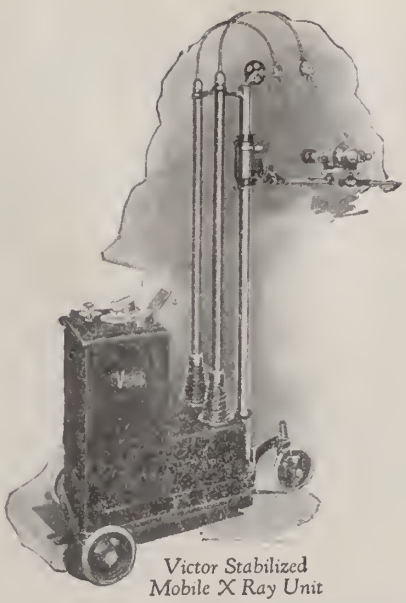
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The scientific program follows:

Dr. Goodrich reported a case of a young married woman with a healed pulmonary phthisis, and healed stomach ulcer, with an abdominal condition as follows:

An obliterative appendicitis and double salpingitis; she was operated and convalesced fairly well for several days. She developed on the fourth day a parotitis, complicated with pernicious vomiting. The stomach was washed out at frequent intervals. The vomiting continued and the patient appeared to be in extremes. Patient became delirious, with marked symptoms of acidosis and nephritis. A duodenal tube was introduced and the patient was given fluids into the duodenum. The patient miraculously improved and on the eighth day the tube was removed because the patient bit it in two. Her convalescence continued to a complete recovery. The parotitis was probably mumps, as she had been exposed to them.

Dr. Dysart reported a case as follows: Patient was a male student, 19 years of age, with pus in urine for three years. He had treatment, without improvement, of various sorts, such as urotropin by mouth, mercurochrome intravenously. The x-ray disclosed a large stone in the pelvis of the left kidney. An operation was advised. Heart, lungs and abdomen were normal. There had never been an attack of renal colic. Was operated September, 1924. Kidney was found badly damaged and was removed. Recovery was prompt and patient left hospital in two weeks. A drain was left in for two wekes longer. There is still at this date a very little occasional drainage from a small sinus at site of operation. The pathologist's report reads as follows:

Examination of kidney discloses a number of calculi, two or three fairly large, irregular in outline, filling pelvis and calyces and encroaching on parenchyma of kidney. The weight of kidney is 86.2 gms., including calculi which weigh 8.6 gms. Dimension of kidney: Length, 86 mm.; width, 43 mm.; depth at widest point is 43 mm.

The surface of kidney is irregular in outline, apparently due chiefly to scar tissue. Gross section of kidney shows the parenchyma to be irregular in thickness, varying from 15 mm. at one pole to two to three mm. at opposite pole, which is occupied by cystic area.

Microscopic sections of cortex of kidney show an inflammatory infiltration, most marked in and about the glomeruli, where there is thickening of vessel walls and excess of fibrous structure, with hyalinization of the capsules of glomeruli. Aside from the evidence of chronic inflammatory change, there is no involvement of the cortex. The large caculi, and the kidney and the film were displayed.

Dr. Tuthill suggested that the hospital, or, if necessary, the staff provide a shadow box for the display of x-ray films.

There being no other business, the meeting stood adjourned.

ORVILLE HARRY BROWN, Sec'y.

STAFF MEETING OF ST. JOSEPH'S HOSPITAL
(Phoenix, Ariz.)

This was the second regular staff meeting of the season, and was attended by sixteen members of the staff and two visiting doctors.

Twelve clinical records had been selected from the files by the Executive Committee and were given to the first twelve members arriving at the meeting, to be discussed and criticized by them. Some of these records were complete, others glaringly imperfect. The important points in the record had been reproduced on lantern slides by the secretary and were exhibited on the screen during the discussion of each case. The first case had the most complete record, and is reproduced for comparison with the other histories, all of which were deficient in some respects.

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CASE 1. DIAGNOSIS OF CEREBRAL EMBOLISM

File No. 5701. F. H.: Parents living and in good health; three brothers, ages 16 years, 14 years and 10 months; one sister died with pnuemonia.

Complaint: Child, 4½ years old, with normal birth history; when two weeks old, mother thought she had "spells", because she got white around the mouth and screamed as if in great pain. When two years old had a convulsion, remaining unconscious for six hours; six months later had another convulsion, but did not lose consciousness. During the past two years, child has had two or three choking spells, with vomiting; after these spells her entire right side seemed to be paralyzed for several hours. Four days before entering the hospital, she had a severe convulsion, lost consciousness and has not yet regained this. Entered hospital September 20.

P. H.: Scarlet fever two years ago; whooping cough 1½ years ago; measles at six months.

Physical Exam.: Tonsils enlarged. Teeth normal. Neck negative. Lungs normal without rales or dullness. Apex of heart 1½ inches outside of mammary line, with right border one finger to right of sternum. Both sounds present, first roughened and harsh, but no bruit; second pulmonic accentuated; rhythm irregular. Liver and spleen not palpable; no tumor. G. U., skin, bones, joints all negative. No adenopathy. Pupils markedly dilated, contracting slightly to strong light. Right arm and right leg in spastic contraction; knee jerks sluggish, marked ankle clonus on right side, suggestive on left. Babinski slightly positive on right, negative on left. Oppenheim, Gordon and Chaddock negative. Marked twitching of left side of face.

Laboratory: Sept. 20, wh. ct., 12,000, 81 percent polys; on 26th, 17,900, 77 percent polys. Urine has trace of alb., hyaline and granular casts. Blood Wassermann negative. Spinal fluid Wassermann one plus positive; no inc. in cells; globulin negative; gold chloride negative.

X-ray of chest showed no evidence of abscess or consolidation; heart diameters enlarged.

T. 99.2 to 103; P. 80-100; R. 20-28.

Progress: Coma gradually became less until she seemed to recognize her parents, but the paralysis did not change during stay in hospital.

Dr. Holmes considered this a good history; to the suggestion that this is a picture of syphilis, with possible embolus from syphilitic endocarditis, Dr. Holmes did not agree; evidently there was something wrong from birth; there were transitory illnesses, and in the last attack actual paralysis. Could not improve on the diagnosis of cerebral embolus. Dr. Mills did not think the laboratory findings justified diagnosis of cerebro-spinal syphilis.

CASE 2 (5677). DIAGNOSIS OF BILATERAL PYONEPHROSIS

Discussed by Dr. Sweek: No history or physical findings appear on the record, which would suggest an indication for cystoscopy and pyelography. Pain after urinating, with nausea and dizziness, and normal urine, with normal blood count and normal temperature are not sufficient indication for cystoscopy which is a major procedure. Ureteral catheterization showed pus cells from right side, and pyelogram showed some slight abnormality with calyces. Staphylococci from both kidneys are suspicious of contamination, because a bilateral staphylococcic infection of the kidneys would make a much sicker patient than this was. There are no recorded indications for the cystoscopy and insufficient findings to justify the final diagnosis of pyonephrosis.

CASE 3 (5758). ACUTE APPENDICITIS

Discussed by Dr. Couch: Fairly good, though brief history. Interesting point was that the pain was left sided all the time. History states that patient had three attacks of appendicitis during past four years; it is not proper to record diagnosis of the patient in his history, the symptoms being the items to be placed down. History of pulmonary tuberculosis for years, though the physical examination only mentions "moist rales on right side." This is insufficient examinations of the chest for a tuberculous patient about to be operated on. White count was 20,200 with 85 percent polys.

Preoperative diagnosis correct.

CASE 4 (5705). CHRONIC APPENDICITIS AND CHRONIC CHOLECYSTITIS

Has had diagnosis of pulm. tb. for two years, with x-ray positive for right side. Had sudden sharp attack of pain on Sept. 21, with tenderness localized over McBurney's point.

Discussion by Dr. Brockway: History of illness fairly explicit. The physical examination of chest seems rather cursory. Entry of "induration at hili and in apices" is not a proper physical finding. The pre-operative diagnosis of "chronic appendicitis" is hardly in accord with the symptoms, which are either those of acute appendicitis or not appendicitis at all. White count 12,600, with 70 percent polys. If they regarded this as chronic appendicitis, they were too swift to operate for this is a lesion which requires more than a few hours' study. They also state that he was a poor operative risk on account of lung condition and an organic heart lesion, which does not seem to have been very thoroughly examined.

(Note: The pathological findings in the appendix and surgeon's record of findings at operation would indicate that the pathology was probably in the gall-bladder, rather than in the appendix).

CASE 5 (5654). INFECTED AXILLARY GLANDS

Discusion by Dr. Holmes, (batting for Dr. Mills): This was case of infection in hand

following injury; both wrists became swollen and left axillary glands were swollen. Under diagnosis of acute infection, left axillary glands were dissected out and removed. Pathological report showed tuberculosis of the glands. White count before operation 13,000, 54 percent polys.

What was the reason for removing the axillary glands? In the presence of acute infection, with lymphangitis "red streak up the arm," and axillary adenitis, is it proper surgery to remove the glands, when they have not yet suppurated?

(Surgeon stated that no one was more surprised than he to learn that the glands were tuberculous, and upon learning this, he tried to turn the patient over to the Veterans' Bureau, but he went to another doctor, who incised the wrist joints and hands. Did not explain the reason for the original operation on the glands).

Note: Surgeon who incised the wrist joints states that they were not tuberculous, but true pus was evacuated from each of them, and they both promptly healed.

This appears to have been a case of acute wrist joint infection, with adenitis of glands which were already tuberculous.

CASE 6 (5655). OSTEOMYELITIS OF CUNEIFORM OF WRIST

Discussion by Dr. Watkins: Very little of known history of this case has been recorded. In December 1923, the wrist was injured and I x-rayed it for fracture, finding none. History states that a month ago, wrist became swollen, but this was sometime prior to June, because on June 17th, this year, we x-rayed, showing destructive involvement of the cuneiform, diagnosed as probable tuberculosis. The surgeon not desiring to operate, we radiated the wrist two or three times, without lessening the pain or affecting the swelling. In July, there was probably slightly more destruction shown by x-ray, and again in September. On both of these latter occasions, we advised operation on the cuneiform bone, believing there was material requiring evacuation. He was operated September 24th, the pathologist reporting that the tissue was not tuberculosis, but inflammatory.

(Surgeon stated that this did not look like tuberculosis, nor did it look like a pyogenic infection; he did not know what it was, but recovery was uneventful). The pus was not cultured and no stained smears made at time of operation, which might have thrown light on the condition).

This was a purely limited infection, confined to one wrist bone, which does not resemble either tuberculosis or pyogenic osteomyelitis. Wassermanns were negative.

CASE 7 (5727). SALPINGITIS, CYSTIC OVARIES

Discussion by Dr. Tuthill: "Pain all over abdomen, lasting over a period of weeks, more particularly the past week. Venereal infection cause." This is the patient's complaint, and under Past History, it says "Negative."

On the basis of the findings, "distended on left side, tenderness over entire abdomen, marked tenderness each lower quadrant" the physician makes a working diagnosis of 'salpingitis and appendicitis, cyst left side" probably meaning inside. This is, to say the least, a remarkable diagnosis to make on the physical findings observed.

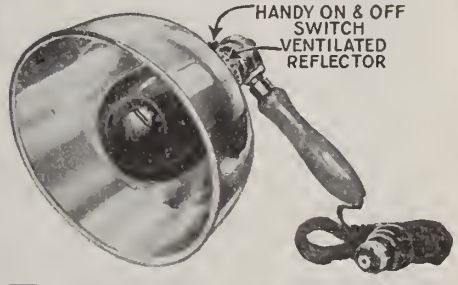
Pre-operative diagnosis was left pyosalpinx, and to make this some sort of pelvic examination should have been made; if it was made, no mention is made of the findings.

Tubes and ovaries on both sides and appendix were all removed, the pathologist finding subacute salpingitis, without free pus.

CASE 8 (5653) PARALYSIS

Discussion by Dr. Smith: Most of the information about this case is to be found in the nurse's record. Two ages stated, 78 by the admission record and 80 by the physician's record (physician says he was really 94). Chief complaint says "paralysis" without stating where or how much. Past history says cannot get history back further than 30 years, and the cause of the paralysis is probably further back than this. Physical examination says "slight paralysis of right side of face" which is a conclusion and not a physical finding. Also says "organic heart disease," which is not very definite.

Aside from this history, which hints at just enough to arouse interest, we have the nurse's record of an old man, partially paralyzed, who gets out of bed and falls down, and needs constant care.



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What the organic heart disease was, whether the paralysis was embolic, hemorrhagic, arteriosclerotic, uremic, or what, nothing in the history or physical examination tells us. The urine was normal; wh. ct. 14,700, 66 percent polys.

CASE 9 (5746). DIAGNOSIS OF PULMONARY TUBERCULOSIS AND LUNG ABSCESS

Discusion by Dr. Clohessy: This patient entered the hospital August 10th and was x-rayed the next day, the report being that there was no evidence of subphrenic lesion; there was a partial pneumothorax on right, with fluid and advanced lung disease of some obscure type. Wassermann was positive on on August 12th. There is no history of this patient's illness and no physical examination of him recorded. On the day of his discharge a very sketchy history and examination record, sounded like the patient dictated it himself is entered; this was October 22nd, two months and 12 days after his admission. On September 17th, a portion of rib was resected and pus from an empyema evacuated; no physical examination back of this operation; on October 16th, more rib was resected.

This is evidently an interesting case with very little information of value about it in the records.

CASE 10 (5671). LIVER ABSCESS

Discussion by Dr. Milloy: Entered September 2nd. Very brief personal history recorded by "S.M.A." The only point in the history is that pain started in the side last May; does not say which side, where abouts in the side, kind of pain or anything else about it. Physical examination is entirely blank, so that we have no knowledge of the facts on which diagnosis of liver abscess was based. Evidently there were definite signs, because the surgeon went in, found the abscess and drained it. The cause of the abscess was not ascertained, cultures from it being negative. Patient returned on November 5th, this time having neither history nor physical examination. Summary sheet says "metastatic lung abscess" and "Died." What was the basis for diagnosis of lung abscess there is no record, and we can only wish that we knew more about this case.

CASE 11 (5679). INTESTINAL TUBERCULOSIS, DEATH

Discussion by Dr. Wilkinson: Record of the patient's complaint is that "six months ago first complained of pain in the pit of stomach, which increased in severity and was accompanied by diarrhea. This was treated as typhoid and improved for a time, but later pain became more severe after eating and diarrhea became more frequent, eight stools a day and eight at night. Is losing weight rapidly.

(On the basis of this complaint, suggestions as to probable diagnosis was asked for and Dr. Clohessy suggested abdominal tuberculosis).

The only recorded physical finding was dullness over the right side and tenderness, with tenderness over fifth dorsal vertebra. Pre-operative diagnosis was appendiceal or subphrenic abscess.

At operation extensive tuberculosis of mesentery and small intestines covered with miliary tubercles, with ascites.

Operation, as an exploratory, was probably justified, although the examination of the case seems to have been rather superficial. There is no record of chest findings; tuberculosis was certainly a possibility on the basis of the history of illness, and if chest findings were negative, x-ray would have shown the miliary tuberculosis. The outcome probably would have been the same, however.

CASE 12 (5645) HYPEREMESIS GRAVIDARUM

Discussion by Dr. Bailey: This is the shortest clinical history on record. Patient's complaint is stated to be "Hyperemesis gravidarum" which argues for a highly educated patient. The doctor evidently agreed with the diagnosis of the patient, because on the physical examination, "Hyperemesis gravidarum" is given as the sum total of the examination. The patient is an unmarried woman, age 20, which opens an interesting field for speculation; however, the old proverb says that "speculation without knowledge is vain," so we can get nowhere with these sheets of paper which when regarded as a clinical record, just isn't.

Several other cases were listed on lantern slides and shown as good examples, a similar list of records which hardly deserved the name.

Staff adjourned to meet again in December.

W. WARNER WATKINS,
Secretary.

DR. JOHN E. BONAR

Announcement of the death of Dr. John E. Bonar, a member of the Greene-Cananea Hospital staff at Cananea, Sonora, was made at the recent meeting of the Southwest Association. The cause of death was lobar pneumonia, and the body was accompanied east by Dr. Frank T. Hogeland, chief surgeon of the hospital. Dr. Bonar had many friends in Arizona and New Mexico, who will be very sorry to learn of his rather sudden death.

DR. JAMES M. MOORE of Clemenceau, after the first of the year, will be located at Jerome, on the staff of the United Verde Hospital. DR. A. F. GOUGH, formerly of Hermosa Beach, Calif., will take his place on the United Verde Extension staff, at Clemenceau.



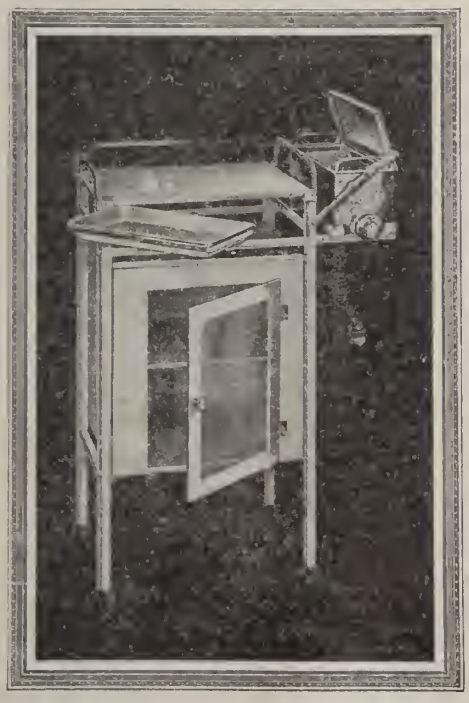
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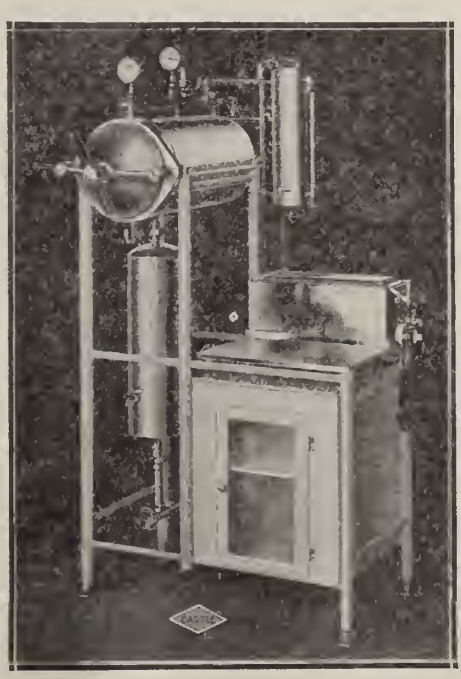
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ARIZONA DEACONESS HOSPITAL (Phoenix) STAFF COMMITTEES

The Board of Directors of the Arizona Deaconess Hospital has elected Mr. K. S. Townsend as president. He succeeds Mr. J. O. Sexson who has been made business manager of the hospital. Other members of the board of directors are John D. Loper, Dr. J. C. Norton, C. W. Goodman, L. W. Caggins, J. A. R. Irvine, L. J. Cox, Miss Lola I. Clifton, Warwick Scott, James Aldrich, J. O. Sexson and Lloyd B. Christy.

The Medical & Surgical Staff of the Hospital recently elected Dr. George Goodrich chairman of the staff organization and Dr. Orville H. Brown secretary of the staff. Dr. Goodrich has recently appointed the following committees, which have been approved by the board of directors:

Surgical Committee: Dr. Chas. B. Palmer, Dr. Wilalrd Smith, Dr. Louis Dysart, Dr. R. L. shupe, Dr. W. C. Ellis.

Medical Committee: Dr. S. D. Little, Dr. E. R. Charvoz, Dr. F. J. Milloy, Dr. Coit Hughes, Dr. L. H. Thayer.

Records Committee: Dr. Warner Watkins, Dr. H. R. Carson, Dr. R. J. Stroud, Dr. I. L. Garrison, Dr. Harry Felch.

Eye, Ear, Nose and Throat Committee: Dr. H. T. Bailey, Dr. W. A. Schwartz, Dr. E. C. Bakes, Dr. F. L. Reese, Dr. J. J. McLoone.

Diagnosis Committee: Dr. Kimball Bannister, Dr. Fred G. Holmes, Dr. H. B. Gudgel, Dr. H. L. Goss, Dr. H. P. Mills.

Obstetrical and Nurses' Training Committee· Dr. John Wix Thomas, Dr. A. J. McIntyre, Dr. L. D. Dameron, Dr. A. A. Shelley.

Urological Surgery Committee: Dr. Chas. S. Vivian.

The Medical Council consists of Dr. Geo. Goodrich (chairman), Dr. O H. Brown (secretary), Dr. W. Warner Watkins, Dr. Kimball Bannister, Dr. Chas. B. Palmer, Dr. S. D. Little, Dr. H. T. Bailey, Dr. John Wix Thomas, Dr. Chas. S. Vivian, Dr. H. P. Mills, (pathologist) and Dr. H. L. Goss (roentgenologist).

A BOOK OF IMPORTANCE IN THE PRESCRIBING OF DIETS

The dietetic importance of pure, plain, granulated gelatine has attracted so much attention, and the demand for more information has reached such a volume that the Laboratories of the Charles B. Knox Gelatine Company have prepared a book of dietetically correct recipes with gelatine for Diabetes, Nephritis, High Blood Pressure, Gastritis, Gastric Intestinal Disorders, Fevers, Constipation, Obesity, and general mal-nourishment in infants and adults.

The recipes have been most carefully worked out under authoritative auspices and with each recipe is given quantitative analysis of carbohydrates, fat, protein and calory value.

The Diabetic section of the book is a most valuable contribution to advanced dietetic practice, with or without the insulin treatment. Another important chapter is the report of T. B. Downey, Ph.D. Fellow at Mellon Institute (Pittsburgh), on the value of pure, unflavored gelatine as a protective colloid in the modification of milk in infant feeding, which in no way changes prescribed formulas. Dr. Downey has determined, by standard feeding tests, that the addition of 1 percent of gelatine to a quart of milk increases the yield of nourishment by about 23 percent.

Furthermore, these feeding tests determined that the protective colloidal action of the gelatine was highly efficacious in aiding the complete digestion and resulting assimilation of other basic foods of the vegetable, fruit, meat and fish families.

A most important feature of this book is the simple and complete directions for the preparation of these dishes, without which a prescribed diet so often fails, despite the care and caution of the physician.

The book will be mailed upon request—postpaid and free of charge—by the Charles B. Knox Gelatine Company, Johnstown, New York, to any physician or dietician who requests it.

ANNOUNCEMENT

The Rockefeller Institute for Medical Research has announced the release of the drug known as Tryparsamide for use in the treatment of human and animal trypanosomiasis (African sleeping sickness and **mal de caderas**) and selected cases of syphilis of the central nervous system. This action is based on results reported from clinical investigations which have been in progress for several years. The drug will be manufactured by the Powers-Weightman-Rosengarten Co. of Philadelphia, and will become available through the regular trade channels about January 1, 1925. In releasing the drug for the benefit of the public, the Rockefeller Institute desires it to be known that the Institute does not share in any way in profits that may be derived from the sale of the drug and that, with the cordial co-operation of the manufacturers, provision has been made for the maintenance of a schedule of prices on as low a basis as possible.

COCHISE COUNTY (Ariz.) MEDICAL SOCIETY

At the recent meeting of the Cochise County Medical Society, Dr. Z. Causey of Douglas was elected president. This society is making elaborate preparations for the entertainment of the state Association in April. This preparation includes an entertainment in Naco, where it is expected that Dr. Harbridge will again act as "toreador de gallina."

INFANT DIET MEAD'S MATERIALS

A STANDARDIZED COD LIVER OIL
FOR THE CONTROL OF RICKETS

RECENT PEDIATRIC LITERATURE has demonstrated conclusively the value of Cod Liver Oil in the prevention and cure of rickets.

BUT SMALL AND UNIFORM DOSES can only be given when an oil of uniform high potency is available.

THE HIGH POTENCY OF MEAD'S CERTIFIED COD LIVER OIL is assured by careful supervision of every step in its preparation, and by making sure that only fresh cod livers are used from fish in the best physiological condition.

THE UNIFORMITY OF POTENCY is assured by biological tests of each batch of MEAD'S CERTIFIED COD LIVER OIL before marketing.

THE RESULT IS A STANDARDIZED ANTIRACHITIC AGENT which not only is unusually well tolerated by infants, but can also be given efficiently in such small doses as not to upset the fat proportion in the baby's diet.

Samples and literature sent at physician's request.



MEAD JOHNSON & COMPANY
Makers of Infant Diet Materials
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MEAD'S DEXTRI-MALTOSE

Toxin Antitoxin (*Lederle*)

For Immunization Against Diphtheria

Park conclusively demonstrated the value of diphtheria immunization with Toxin-Antitoxin Mixture. Immunity still persists in over 90% of children immunized six years ago.

Toxin-Antitoxin (Lederle) is made according to Park's modified formula, containing one-tenth L plus dose of toxin.

Studies during the past two years show that no severe reactions followed the use of this modified formula either in children or adults. This product therefore permits of universal immunization against diphtheria.

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THIS BOOK MUST NOT BE RETAINED FOR LONGER THAN ONE WEEK AFTER THE LAST DATE ON THE SLIP UNLESS PERMISSION FOR ITS RENEWAL BE OBTAINED FROM THE LIBRARY.

JUN 28 '65